

SEVENTH ANNUAL REPORT
ON THE
OPHTHALMIC SECTION, 1919.

MINISTRY OF THE INTERIOR, EGYPT.

DEPARTMENT OF PUBLIC HEALTH.

SEVENTH ANNUAL REPORT

ON THE

OPHTHALMIC SECTION,

1919,

BY THE DIRECTOR OF OPHTHALMIC HOSPITALS.

CAIRO.

GOVERNMENT PRESS.

To be obtained, either directly or through any Bookseller,
from the GOVERNMENT PUBLICATIONS OFFICE, Old Ismailia Palace, Sharia Qasr el Aini.

1920.

PRICE : P.T. 5.

Cairo,
July 3, 1920.

SIR,

I have the honour to enclose my Report on the Ophthalmic Hospitals and on ophthalmic progress in Egypt during the year 1919.

I have the honour to be,

Sir,

Your obedient servant,

A. F. MACCALLAN,

Director of Ophthalmic Hospitals.

TO THE UNDER-SECRETARY OF STATE,

DEPARTMENT OF PUBLIC HEALTH,

MINISTRY OF THE INTERIOR.

CONTENTS.

	PAGE
I.—FOREWORD	1
II.—ADMINISTRATION :—	
(1) Staff	2
(2) Finance	2
III.—HISTORICAL AND CLINICAL :—	
(1) Historical	3
(2) Causes of Acute Contagious Ophthalmia in Egypt	4
(3) Chronic Trachomatous Conjunctivitis	9
(4) Blindness in Egypt	10
(5) Glaucoma	10
(6) Optic Atrophy	11
(7) Cataract	12
(8) Pathological Report	12
(9) The Ophthalmological Society of Egypt	12
IV.—OPHTHALMIC TREATMENT IN SCHOOLS	13
V.—STATISTICAL TABLES :—	
I.—Synopsis of Work of Hospitals since 1904	15
II.—Details of Capital Expenditure	16
III.—New Patients treated per Month during 1919	16
IV.—Number of Patients treated and Operations performed at the Ophthalmic Hospitals during 1919	17
V.—Average Number of Operations performed per Month at the Ophthalmic Hospitals during 1919	17
VI.—Conjunctival Micro-organisms found during 1919	18
VII.—Relation of Various Conjunctival Micro-organisms to Monthly Incidence of Ulceration of Cornea	19
VIII.—Average temperature	20
IX.—Graph showing Average Temperature and Number of New Patients treated per Month	20a
X.—Graph showing Average Temperature and Positive Bacteriological Examinations per Month	20b
XI.—Graph showing Average Temperature and Monthly Totals of Smears showing Gonococci	20c
XII.—Graph showing Average Temperature and Monthly Totals of Smears showing B. Koch-Weeks	20d
XIII.—Graph showing Average Temperature and Monthly Totals of Smears showing B. Morax-Axenfeld	20e
XIV.—Blindness among Out-patients since 1906	21
XV.—Total Percentage of Blindness in one or both Eyes	21
XVI.—Blindness in Egypt according to Census, 1907 and 1917	22
XVII.—Percentage of Blindness in Egypt according to Census 1917	22
XVIII.—Incidence of Blindness among Out-patients according to the Age of each Patient seeking Treatment	22
XIX.—Percentage of Blindness in one or both Eyes per Age at which Patient sought Treatment	23
XX.—Causes of Blindness	23
XXI.—Classification of the Causes of Optic Atrophy	24
XXII.—Ophthalmoscopic Study of Optic Nerve Disease	24
XXIII.—Resumé of Senile Cataract Operations by A.F.M.C. during 1917	25

	PAGE.
V.—STATISTICAL TABLES (<i>continued</i>) :—	
XXIV.—Résumé of Cataract Operations on Glaucomatous Eyes by Various Surgeons ...	26
XXV.—Résumé of Cataract Operations on Glaucomatous Eyes by A.F.M.C. ...	27
XXVI.—Pathological Reports ...	28
XXVII.—Number of Wassermann Tests... ..	28
XXVIII.—Work done at all Ophthalmic Hospitals during 1919 ...	29
XXIX.—List of Diseases	30
XXX.—List of Operations	33
XXXI.—Actual Expenditure, Central Administration, 1918–1919 ...	34
XXXII.—Actual Expenditure, Government Ophthalmic Hospitals, 1918–1919 ...	34
XXXII.—Actual Expenditure, Government Ophthalmic Hospitals, per Unit, 1918–1919	35
XXXIV.—Actual Expenditure, Provincial Council Ophthalmic Hospitals, 1918–1919 ...	36
XXXV.—Comparison of the Cost of Maintenance of a Permanent Ophthalmic Hospital in 1914 and 1920	37
XXXVI.—Cost of Uniform Diets for all Patients at Ophthalmic Hospitals during 1919, excluding Cost of Rations of Employees	38
XXXVII.—Number of Beds at the Ophthalmic Hospitals	38
VI.—STATISTICS OF OPHTHALMIC TREATMENT IN SCHOOLS (EXCEPT FAIYŪM) :—	
I.—Pupils inspected	39
II.—(a) Condition of Conjunctivitis	40
(b) Effect of Treatment on Serious Stages of Trachoma	41
(c) Stages of Trachoma at Beginning and End of School Year	41
III.—(a) Trachoma and its Relation to School Years	42
(b) Comparison of Serious Stages of Trachoma	43
IV.—Vision of all Pupils without Spectacles	43
V.—Spectacles ordered	43
VI.—(a) Vision of Pupils ordered Spectacles (before ordering)	44
(b) Vision of Pupils ordered Spectacles (after ordering)	44
VII.—Condition of Cornea before Treatment... ..	44
VII.—STATISTICS OF OPHTHALMIC TREATMENT AT FAIYŪM SCHOOL :—	
I.—(a) Condition of Conjunctivitis	45
(b) Effect of Treatment on Serious Stages of Trachoma	45
II.—(a) Trachoma and its Relation to School Years	45
(b) Comparison of Serious Stages of Trachoma	45
VIII.—PUBLICATIONS	46

REPORT ON THE OPHTHALMIC SECTION, 1919.

I.—FOREWORD.

The number of new patients treated at these hospitals was 76,525, the number of operations performed was 49,974, and the total attendances of out-patients was 906,961.

This work was carried out at the eighteen hospitals which have been established in the country districts since, in 1903, Sir Ernest Cassel made his gift of L.E. 40,000, which was the inception of the undertaking.

Four of the hospitals are travelling camps under canvas ; it is owing to the reputation gained by them that Egypt has learned to value the means of ophthalmic relief and to obtain it by building permanent hospitals. One of the hospitals is a stationary camp under canvas, and the remaining thirteen are specially designed buildings completely equipped for the treatment of both in-patients and out-patients. The permanent hospitals have been constructed and equipped mainly from money raised locally by public subscription or from the funds of the Provincial Councils. Eleven of them are maintained by the Government and five from the funds of Provincial Councils and two from the interest of the Cassel Fund. The actual amount raised locally for capital expenditure is L.E. 82,373, excluding Sir Ernest Cassel's original donation. The annual cost of the whole system of hospitals, including expenses of administration during 1919, was L.E. 31,193, of which the Provincial Councils contributed L.E. 3,406 (*see* Tables II and XXXI to XXXIV).

The need for ophthalmic treatment has two entirely separate origins. The first is the prevalence of a chronic disease of the membrane lining the eyelids, trachoma, and the other is a group of acute contagious ophthalmias which are the main cause of blindness in Egypt. More than 12,000 patients who sought treatment at the hospitals during 1919 were blind in one or both eyes : this is fifteen per cent of the new patients. A system of prophylaxis has yet to be discovered. The clinical research work which is being carried out at the ophthalmic laboratory, at the ophthalmic hospitals, and at the ophthalmic clinics of each of the Government primary schools all over Egypt, should eventually shed some light on prophylactic measures. The importance of obtaining treatment for babies and children attacked by ophthalmia is beginning to be recognized by the people ; more than six per cent of all patients treated were under the age of one year, and thirty-nine per cent were under the age of fifteen years.

A complete course of post-graduate lectures, including pathological and bacteriological demonstrations and lantern slides of the principal diseases, were given by the Director with the assistance of the Egyptian inspectors during the year. The surgical staff, which should consist of forty-one officers, is deficient to the extent of the two inspectors and two surgical officers : this shortage hampers new work considerably.

Each of the fourteen provinces is now provided with an ophthalmic hospital, except Qena and Aswân. Qena, however, has subscribed L.E. 15,200 to build a hospital and the plans are being prepared. The Government has recognized that the province of Aswân is too poor to provide the necessary sum for building, and although it was not possible to grant this in the current budget it is hoped that next year it will be granted.

The provision of a special ophthalmic hospital for Cairo is urgently required for three reasons. First, because there is insufficient ophthalmic out-patient relief available for the immense number of persons in Cairo who suffer, more especially during the hotter months, from painful and destructive diseases of the eye. It ought to be known more widely that it is impossible, with the existing hospital facilities of Cairo, to cope with the vast number of patients who come to hospital demanding operation and treatment. An admirable and central site has been granted by the Government which is prepared to maintain the hospital if funds can be obtained by subscription. The hospital should be equipped with at least one hundred beds and be able to treat 2,000 out-patients daily in the summer. Secondly, the important post-graduate teaching which is carried out by the Director and inspectors is hampered by the present inadequate accommodation at or near Cairo, afforded by the tent hospital at Gîza. Thirdly, the clinical research work has insufficient facilities both as regards the number of patients available for study and as regards laboratory accommodation.

II.—ADMINISTRATION.

(1) STAFF, ETC.

The inspecting staff, which should consist of four surgeons, has been reduced to two Egyptian surgeons since the beginning of the war. Two posts are now vacant. During the summer of 1919, when one of the posts was thoroughly advertised in England, there were no serious candidates. The holder of the post must have considerable ophthalmic experience and an aptitude for teaching.

The principle adopted as regards appointments to these posts, known as divisional ophthalmic inspectorships, now is that whenever a vacancy occurs and an Egyptian member of the surgical staff shows himself qualified by experience and character for the post, he is appointed in preference to a British surgeon. One such appointment will be made shortly, making the fourth Egyptian promoted to a high technical and administrative ophthalmic post during the last few years. This, however, leaves two similar posts vacant which cannot be similarly filled with advantage to the public service at the present time, either because some of the senior surgeons do not desire a post which entails considerable fatigue in travelling with deprivation of their highly lucrative private practices, or because others are not yet qualified to undertake the duties of posts of such responsibility. It is not doubted, however, that within a few years further promotions of the Egyptian staff can be recommended.

The qualified surgical staff, for which there are forty-one posts, including those provided by Provincial Councils, lacks four surgeons. Owing to these deficiencies it has been found impossible to commence the ophthalmic inspection and treatment at two Government Primary Schools in Cairo, for which all the necessary arrangements had been made.

The staff is recruited from the Government Medical School, with occasional volunteers from other medical branches of the government service. The first two years of service are a period of probation during which no private practice is allowed, after which practice in the afternoon is permitted, the hospital work being carried on from 8 a.m. to 1 p.m. daily. This arrangement provides for the needs of the richer inhabitants of the town in which the hospital is situated, and relieves the strain on the hospital work which is entirely gratuitous.

The amount of clinical work done during the year is somewhat less than the previous year owing to the great influenza epidemic. During this outbreak the ophthalmic hospital at Mahalla el Kubra was closed for ophthalmic purposes and used as a fever hospital during a period of forty-one days. Also nine ophthalmic medical officers were taken away from their special work and detailed to carry on the treatment of influenza patients, or the prophylaxis of the disease, for a period of about a month. The disturbances in March, April, May, and June also reduced to a small extent the number of patients applying for treatment.

Also the travelling ophthalmic hospital maintained by Asyût Provincial Council was closed during several months of the year owing to financial difficulties. It is now again working.

An ophthalmic hospital is carried on by the Alexandria Municipality which is inspected by the Director of Ophthalmic Hospitals. 3,806 out-patients were seen, and 880 operations were performed. The present highly unsatisfactory building and equipment is about to be exchanged for more convenient premises, when it is to be hoped that it will be possible to observe a more rigorous cleanliness, and that the recent appointment of a second ophthalmic medical officer will be justified by an increase in the amount of clinical work performed.

(2) FINANCE (see Tables XXXI to XXXVI).

In the Appendix will be found a statement of the expenditure during the year 1918-1919; as the financial year is from April 1 to March 31, it is impossible to give in this report the expenditure after March 31, 1919. The financial year does not correspond with the statistical year which is from January 1 to December 31, so any method of working out the cost per patient treated or per operation performed is approximate only.

The number of hospitals at work during 1919 was eighteen ; the number of hospitals which were being organized or projects which were being studied (processes which take at least as much time as must be spent in administering a running hospital) were three ; the number of schools treated, each of which require nearly as much central office work as a hospital, was eleven. This makes thirty-two units in all for administration by the Central Ophthalmic Office, the expenses of which amounted to L.E. 5,088 ; the administration, which includes clinical inspection and post-graduate instruction of newly recruited medical officers, of each unit, therefore cost L.E. 159.

At the local centres it is impossible to separate the expenses incurred in hospital administration from those incurred in the school inspection of 2,031 pupils. Also the work of these hospitals differs from that of many general hospitals, in that its main part is the out-patient department, and so to calculate the cost on the small number of in-patients would give a false idea. There were 76,525 new patients treated and 2,031 pupils treated or inspected in the schools, making a total of 78,556. The total provincial expenditure was L.E. 26,105, making the cost per patient treated 332 milliemes, or, as each patient attended on the average thirteen times, 25·5 milliemes, or rather more than sixpence a visit.

It should be noted that there is no statement of the expenditure on stores supplied by the Stores Department, but as it is considered desirable to know what amounts are expended, a list of all articles supplied during the year is made out by each hospital and priced according to the Stores List of Prices. As prices during 1918–1919 have increased 140 per cent on the prices given in the Stores List, as stated by the Director of Stores, the total amounts have been increased. These figures are given for the Government and the Provincial Council Hospitals combined.

The cost of running a typical permanent ophthalmic hospital has increased from L.E. 1,357 in 1914 to L.E. 2,674 in 1920, as is seen in Table XXXV.

The cost of food for patients varies very greatly in different localities, the ration being the same at all hospitals where all patients have full diet. While at Delta Barrage the cost is 38·2 milliemes, at Aswân and Idfu, the cost by contract for exactly the same amount and quality is 60·2 milliemes, with intermediate amounts at various towns without any relation to geographical position. It is impossible to say that in Upper Egypt the cost is higher than in Lower Egypt, for at Minya the cost is about 42·3 milliemes only and at Asyût 54·1 milliemes, at Zagazig 46 milliemes, and at Tanta 53 milliemes (*see* Table XXXVI).

III.—HISTORICAL AND CLINICAL.

(1) HISTORICAL.

The papyrus discovered by the archæologist Ebers, which carries back 3,400 years from to-day our knowledge of Egyptian history and of the customs of the ancient Egyptians, indicates that both purulent ophthalmia and trachoma were rife in the country at the period of its inscription. This papyrus inscribed by the medical priests of the XVIIIth dynasty at latest, although it is only a collection of prescriptions, seven hundred in number, enumerates so many diseases of the eyes that one must admit that these diseases were frequent at the time it was written. Among the conditions which can be identified are muco-purulent discharges, leucomata, and inverted lashes. Epilation forceps have been found in tombs of the New Empire as well as little pots containing oxides of copper and zinc, and sulphates of lead and antimony. The pigment which these pots contained was used for darkening the edges of the eyelids as well as for treating conjunctivitis ; it has been in use since the earliest times : a wall sculpture at Beni Hassan of about the nineteenth century B.C. shows thirty-seven Beduin chiefs bringing some of it as a present to the prince of the *nome*. Under the name of *kohl* it is in use to the present day. Before the Old Empire a green powder, native carbonate of copper, was used as an eye paint, but this practice seems to have become old fashioned even when the Pyramids were being built.

In the fifth century B.C. Hippocrates was born at the Greek island of Cos, by whose means scientific medicine evolved from its previous superstitious chaos. He was well acquainted with trichiasis. At the end of the fourth century ophthalmology was already a recognized speciality at Alexandria where Herophilus, who lived in the reign of Ptolemy

Soter, wrote a book on the eyes, which unhappily has not been preserved. About this time also Euclid studied the first elements of optics at the same place.

In the beginning of the second century Heliodorus practised at Alexandria and has left a fragment of a work on surgery which describes scalping of the eyelids for trichiasis, and various remedies for ophthalmia. At the time of Nero in the first century of our era the famous Celsus lived at Rome; he wrote exactly of trachoma, trichiasis, and operations for cataract. The works of the great Græco-Roman doctors of the early centuries have no particular relation with Egypt, though Cassius Felix in the fifth century describes *trachomata id est asperitates palpebrarum*. However, they furnished Paul of Ægina, who lived at Alexandria in the seventh century, with material for the compilation of three ophthalmological chapters in his book of medicine. He mentions trichiasis for the cure of which he describes the operation in common use in Egypt among the *fellahîn* until recently. The operation consists in attempting to evert the ingrowing lashes by the removal of a piece of skin from the upper lid; it is effected by including a fold of skin between two pieces of reed or stick which are tied tightly together at their extremities. The skin necroses since its blood supply is cut off, and becomes detached after some days, with the pieces of stick. The entropion is occasionally cured, but always at the expense of a shortened upper lid and the frequent production of lagophthalmos.

It is said that important books by the surgeons of the Ptolemaic and Roman periods were lost in the conflagrations which at different epochs destroyed the famous library of Alexandria, but there is evidence that little additional progress in ophthalmological knowledge had been made in the six centuries after the time of Celsus.

Between the eighth and fourteenth centuries more than sixty Arab specialists in ophthalmology are known by name, of whom thirty-two left written treatises, though only thirteen now remain, ten of them in Arabic, one in Persian, and two in Latin translations. The best known of these are Honein Ibn Ishaq in the ninth century, Omar el Musli and Ali Ibn Issa in the eleventh century, and El Shadli in the fourteenth century. Thus the medical literature of the Arabs has not only adopted and preserved the ophthalmic lore of the Græco-Roman physicians of an earlier stage, but has considerably enriched it at a period when in Europe all the sciences were in a state of profound decadence. It should be particularly noted that both the Greek and the Arab surgeons distinguished exactly between chronic trachoma and acute ophthalmia, a clarity which disappeared with the decline of Arab science.

These notes on the ancient history of ophthalmology were compiled from information supplied partly by Mr. A. Quibell of the Department of Antiquities and partly from communications made to the Society of Ophthalmology of Egypt by Dr. Meyerhof. It is hoped to supplement them by a sketch of mediæval and modern ophthalmology in a subsequent report.

(2) CAUSES OF ACUTE CONTAGIOUS (NON-TRACHOMATOUS) OPHTHALMIA IN EGYPT (see Tables III and VI to XIII).

The micro-organisms which cause acute contagious ophthalmias in Egypt are mainly the gonococcus, the bacillus of Koch-Weeks, and the diplobacillus of Morax-Axenfeld; the pneumococcus is comparatively rarely met with, only in 361 cases out of a total of 10,211 positive microscopical examinations under the oil-immersion lens made in 1919 (see Table VI). The seasonal variations of the various organisms have been described in detail in the 1918 and previous reports and did not show any material variations in 1919; the conclusion drawn may be quoted:—

“ We have found that the number of new patients who present themselves for treatment is very much greater in the summer than in the winter. This may be due, to some extent, to the shorter days of winter, giving less time for those who come from a distance to go to and come from the hospital, and to the condition of the roads during rainy weather preventing travelling, but is mainly due to the increased amount of communicable eye disease, that is, acute conjunctivitis, during the summer months. We have previously shown that neither atmospheric humidity nor variations in the level of the Nile bear any relation to this increased incidence of conjunctivitis.

“ While in December and January the new patients are about 4,000 or 5,000 per month, in August they number 10,000. The increase begins in the spring of each year, about the

same time as the rise in the average temperature ; this was more marked in our records for 1917 than in the accompanying curve for 1918.

“ It is seen that the general trend of the two curves is very similar, and it is impossible to resist the impression that there is a definite relation between rises and falls of temperature and increased desire for ophthalmic treatment.

“ The gonococcus is seen to be the main cause of the increase of acute cases of conjunctivitis, and the increases appear subsequent to the rise of temperature; although the upward trend of the gonococcal curve continues disproportionately long, as compared with that of the temperature ; also the maximum amount of gonococcal conjunctivitis is found in October, while the maximum temperature is reached in July.

“ The conjunctivitis due to the Koch-Weeks bacillus certainly increases with the spring rise in the temperature, but its maximum incidence is found in April or May, and not in October, as we have seen is the case with the gonococcus.

“ Conjunctivitis due to the Morax-Axenfeld bacillus does not vary so much during the year in its incidence as the above-mentioned organisms. It is, however, somewhat more prevalent in the early part of the year, and comparatively to the other organisms is seen to be much more frequent at this time.”

Although a knowledge of the micro-organism causative of any particular case of acute ophthalmia is desirable from a scientific point of view and also from the point of view of prognosis the treatment is the same in all cases, and if the cases come to a hospital for treatment in an early stage or at any date before the cornea has become ulcerated a speedy cure is effected.

The treatment adopted is as follows : first, the conjunctival sac is thoroughly flushed with eusol solution ; secondly, the conjunctiva is thoroughly swabbed with two per cent silver nitrate solution applied by means of a pledget of cotton wool wrapped closely round the end of a glass rod, different rods being used for the two eyes ; thirdly, the patient sitting before a bowl of freshly made eusol solution* in which are floating pledgelets of cotton wool, continually swabs his eyes with the solution, allowing if possible some of the fluid to enter his eyes. In addition to this a hospital attendant swabs the patient's eyes at intervals of half an hour. In the case of babies and children, the mother is taught to do the constant wash in the absence of the attendant. This goes on from 8 a.m. till 3 p.m. Antiseptic drops are then instilled into the patient's eyes by the attendant, or in some severe cases the conjunctiva is again swabbed with silver nitrate solution by the surgeon. The patient then goes home and returns the following morning at 8 a.m. to continue similar treatment. Home treatment with the average out-patient is usually quite ineffective, but is occasionally ordered. Very few of these cases are admitted as in-patients, as they would require the provision of many extra beds in each hospital for their accommodation.

This rough form of treatment has been carried out for more than ten years at the Egyptian ophthalmic hospitals with surprisingly good results. In fact it may be said that if the treatment of an acute ophthalmia is commenced before corneal ulceration has occurred, this complication rarely develops. This conclusion is based not merely on our clinical experience, but on detailed examinations of the year's work at four hospitals. The details are shown in Table VII, which also show that corneal ulceration is most common in October and November among out-patients who seek treatment for acute ophthalmia and in whom this complication has already occurred ; also that the gonococcus is by far the most frequent cause of ulceration.

ULCERS COMPLICATING CONJUNCTIVAL INFECTION DURING 1919, ASYÛT, GÎZA, FAIYÛM, BENI SUEF.

ORGANISM.	No Ulceration.	ULCERATION OCCURRING IN		Total.	Per Cent of Cases in which Ulceration occurred.
		New Patients.	Patients under Treatment.		
Gonococcus	1,156	489	12	1,657	30·23
Koch-Weeks	870	137	—	1,007	13·60
Pneumococcus	65	37	—	102	36·27
Morax-Axenfeld	330	185	—	515	35·92
Mixed infection	163	60	—	223	26·90
TOTAL... ..	2,584	908	12	3,504	26·25

* Cf. T.O.S., 1894, Lawford, on the use of chlorine water.

A knowledge of the organism is, however, of the greatest importance from the point of view of prognosis. If the patient comes under treatment early he is safe as regards ulceration, provided that the causative organism is not the gonococcus, and then only in less than about one per cent of cases does ulceration develop. The case is very different if in a gonococcal case treatment is not sought or if the treatment includes an occluding pad and bandage, allowing the eye to soak in its own destructive juice, when the percentage of ulceration rises to nearly thirty.

With a Koch-Weeks, pneumococcal, Morax-Axenfeld, or mixed infection (which does not include the gonococcus) ulceration is not likely to occur under treatment, but without careful treatment pneumococcal and Morax-Axenfeld conjunctivitis will cause ulceration in nearly fifty per cent, mixed infection in nearly thirty per cent, and Koch-Weeks infections in about thirteen per cent.

The influence of trachoma (which we recognize as an entirely chronic disease and one which affects practically all our out-patients) on acute conjunctivitis has not yet been entirely cleared up. There is no doubt that if certain of the complications of trachoma are present such as trichiasis-entropion, there is very much more likelihood of ulceration occurring; on the other hand, it has been suggested that the trachomatous pannus has a protective action. We are at present unable to form any definite conclusion on this latter statement.

It is probable that there is an increased liability to infection of trachomatous subjects by the various organisms causative of acute conjunctivitis. At any rate a trachomatous patient in stage II of the disease has more pathological organisms in his conjunctival sac normally than a person with a healthy or cicatrized (stage IV) conjunctiva.

A membranous form of conjunctivitis may be caused by any sufficiently virulent organism, the gonococcus, the bacillus of Koch-Weeks, the pneumococcus, the streptococcus, as well as the bacillus diphtherias, and there is frequently no difference between the clinical appearance of a conjunctival membrane produced by the bacillus diphtherias and that produced by some other organisms. Also the diphtheria bacillus in the summer months especially may be found associated with the other organisms. If the patient has a diphtheritic membrane in the throat or if a swab on culture is diagnosed by a competent bacteriologist as diphtheritic there is certainly exacting necessity to treat the patient with anti-diphtheritic serum. But it would be absurd to treat every case of conjunctival membrane as if it was a genuine case of diphtheria. A somewhat similar clinical condition may be produced in any case of conjunctivitis by painting the lids with too strong a solution of silver nitrate. The practitioner who gives antidiphtheritic serum as soon as he sees a conjunctival membrane, as well as the usual local treatment, and then adduces the anti-diphtheritic serum as a specific for conjunctival conditions, is acting unscientifically, as some cases clear up perfectly under the usual local treatment alone.

It is to be noted that the gonococcus has not a venereal origin in Egypt, but is transferred from eye to eye mainly by means of fingers, garments, and towels. The part played by flies in the transmission of bacterial eye infections is not certainly known, but is not believed to be a large one. Investigations are now in progress in conjunction with the Entomological Section of the Ministry of Agriculture and the Bacteriological Laboratories of the Department of Public Health on the rôle played by flies in the transmission of eye diseases. At the present time our knowledge of the special habits of Egyptian flies requires considerable enlargement before any bacteriological or clinical work can be done in relation to them. There is no existent curve showing the seasonal variations in the numbers of flies in the various parts of Egypt. Until the entomologists provide this we cannot connect with the insects the incidence of acute eye diseases, which already show such a marked dependence on the seasonal variations in temperature.

There is considerable difference between gonococcal conjunctivitis in Egypt and in Europe. In the first place the origin of the condition in Egypt is almost invariably the result of contagion acquired from the conjunctival discharge of a neighbour, whereas in Europe it usually has a venereal origin. This does not mean that gonococcal urethritis is uncommon in Egypt. In the second place the gonococcal conjunctivitis met with in Egypt is characterized by the frequency of subacute and chronic forms. Thirdly, there is a definite seasonal variation in the incidence of gonococcal conjunctivitis: increased prevalence being markedly influenced by the rise of atmospheric temperature which occurs annually in the spring, as shown in my last report. Fourthly, the disease when treated is apparently less destructive than in the cases I remember when house surgeon at the Royal London Ophthalmic Hospital; whether this is because we treat it more skilfully, or because the gonococcus is less virulent, or because the reputed gonococcus of Egypt is not the gonococcus at all, but another morphologically similar organism, remains to be decided.

The small tendency to destruction of the cornea in cases under treatment may conceivably be assisted by the vascularity of the usually pre-existing trachoma, but this cannot be very powerful in view of the frequency of ulceration in untreated cases.

Can it therefore be that the organism is not the gonococcus at all, or is it less virulent than the British gonococcus? The first of these questions has been studied by Dr. Beaton, of the Bacteriological Laboratories of the Department of Public Health, in a number of cases of acute gonococcal conjunctivitis which came to No. 2 Stationary Ophthalmic Hospital at Gîza, in a report dated January 31, 1920, which is here given :—

“ The cases examined were children affected by a purulent conjunctivitis, and the investigation was confined to a consideration of the nature of the Gram-negative diplococci occurring in the discharge.

“ Twelve cases were seen, and from each case films were prepared for microscopic examination and material was placed on suitable media for cultivation.

“ The films all showed Gram-negative diplococci contained in leucocytes of the discharge, the appearance of which differed in no way from the characteristic aspect of typical gonococci in gonorrhœal pus.

“ The Gram-negative diplococci were obtained in culture from four cases, the tubes inoculated from the others having remained sterile or yielded a growth of other micro-organisms only.

“ The possibilities to be considered were that the cocci might be gonococci, meningococci, or members of the two groups of Gram-negative cocci of limited pathogenicity found very frequently in the normal throat and designated *micrococcus catarrhalis* and *micrococcus pharyngis siccus*, or that they might be a specific and hitherto unrecognized type of coccus.

“ The characters of the colonies and the conditions by which their growth was limited may be regarded as excluding the *micrococcus pharyngis siccus*. The morphological characters of the four strains of cocci and the appearance of their colonies on serum-agar differed in no way from those of two strains of gonococci obtained from cases of urethritis. In all six strains the same limitation of growth on media containing serum, the same short viability of the cultures, and the same uncertainty in the development of subcultures, were observed.

“ Gonococci and meningococci differ in their action on the two carbohydrates, glucose and maltose, when growing on solid media containing them. The gonococcus is able to form acid from glucose only, while the meningococcus does so from both glucose and maltose. The four strains were cultivated on media containing these sugars and were found, as were the gonococci, to produce acid only from the glucose.

“ The various reactions to be obtained with the serum of animals inoculated with gonococci and meningococci appear to be of less value in the differentiation of these species than was to have been expected from the great general utility of such reactions in the differentiation of closely allied races of bacteria. Both gonococci and meningococci fall into several groups, indistinguishable within the species by cultural methods, but defined by their immunity reactions, and strains from two different species may be more closely associated in these reactions than strains within one of the species. In view, however, of the epidemic character of this form of conjunctivitis, it would be interesting to know to what extent the various strains are related to one another and to strains of genital gonococci, and I have commenced the preparation of immune sera with this object.”

It is greatly to be hoped that this highly interesting and important research will be continued with the kind permission and co-operation of the Director of Public Health Laboratories.

A bacteriological examination of the conjunctiva of one hundred pupils from Gîza Primary Government School was carried out in November, by Dr. Subhy in order to determine the nature of the normal conjunctival flora in Egypt. The pupils were all trachomatous, but none had any acute conjunctivitis. The *Morax-Axenfeld* bacillus was found in thirty-eight per cent of all the cases, while forty-seven per cent were negative.

CONJUNCTIVAL FLORA OF 100 PUPILS IN NOVEMBER 1919.

	Pure.	Koch-Weeks.	Pneumococcus.	Total.
Morax-Axenfeld	28	5	5	38
Koch-Weeks	2	—	—	2
Pneumococcus	8	—	—	8
Influenza bacillus	—	2	—	2
Uncertain	2	—	—	2
Gonococcus with Koch-Weeks, Morax-Axenfeld, Pneumococcus.	—	—	—	1
Negative	—	—	—	47
Total				100

A similar examination was made of 120 patients attending the hospital at the beginning of November for various conditions mainly conjunctival: all of them were trachomatous, but none presented any acute conditions. Here it was found that 32·5 per cent were negative, and 34 per cent showed the Morax-Axenfeld bacillus. The gonococcus was present in 6·6 per cent.

CONJUNCTIVAL FLORA OF 120 OUT-PATIENTS IN NOVEMBER 1919.

Organisms.	Pure.	Gono-coccus.	Kock-Weeks.	Morax-Axenfeld.	Pneumo-coccus.	Other Organisms.	Total.	Per Cent.
Gonococcus	8	—	—	—	—	—	8	6·6
Koch-Weeks	16	1	—	—	1	2	20	16·6
Morax-Axenfeld	28	1	11	—	1	—	41	34·1
Pneumococcus	7	—	—	—	—	—	7	5·8
Other organisms	1	—	—	—	—	—	1	0·8
Negative	—	—	—	—	—	—	39	32·5
Mixed infection	—	—	—	—	—	—	4	3·3
Total							120	

The mixed infection consisted of one case Morax-Axenfeld, Koch-Weeks, and gonococcus, and in three cases of Morax-Axenfeld, Kock-Weeks, and Pneumococcus.

According to these bacteriological findings the average proportion of eyes with non-cicatrizied trachoma in which the Morax-Axenfeld organism is present is thirty to forty per cent, and not fifty per cent as stated by Meyerhof in the *Annales d'Oculistique* for November 1906. The Morax-Axenfeld organism is invariably present in cases of angular blepharitis and apparently causes the condition: it does not invariably accompany any other condition. The staff of twenty-four employees at No. 2 Stationary Ophthalmic Hospital was examined in November. In twenty-two cases the smears were negative, in one case the Morax-Axenfeld was present with other organisms, and in one case a Gram-negative coccus. This is an interesting fact, considering that they are constantly in the company of patients with heavily infected conjunctivæ.

(3) CHRONIC TRACHOMATOUS CONJUNCTIVITIS (TRACHOMA).

Unmixed trachoma is a chronic disease which has several widely differing forms. It is difficult to obtain a lucid idea of the disease until the forms have been classified and arranged in the sequence of their development. The classification which I have suggested has been in use in Egypt since 1905, and was in use at the Vienna clinic of Professor Fuchs in 1913, though it has not as yet found its way into the English text-books. It is described at length in "Trachoma and its Complications in Egypt," Cambridge University Press, 1913, and in *Archives d'Ophthalmologie*, September 1911; it may be shortly outlined here:—

Trachoma, Stage I.—Seen typically soon after infection has taken place as slight roughnesses forming greyish dots.

Trachoma, Stage II, is divided into (a), (b), and (c):—

Stage II (a).—Greyish follicles project above the surface of the conjunctiva which rupture on pressure, allowing the escape of gelatinous material.

Stage II (b).—Raspberry-like papillæ mask the typical follicles. Two sub-varieties may be distinguished:—

Stage II (b') which is unmixed trachoma.

Stage II (b'') which is trachoma complicated by spring catarrh and is rare in Egypt.

Stage II (c).—Is trachoma complicated by gonococcal conjunctivitis.

Trachoma, Stage III.—Where cicatrization has begun.

Trachoma, Stage IV.—Where cicatrization is complete.

Some years ago the decision as to whether or not a patient with chronic inflammation of the mucous membrane of the eyelids suffered from trachoma was frequently a difficult one. Now, however, with the power to recognize certain clear signs, the diagnosis can usually be made without great difficulty. The following signs are pathognomonic of trachoma:—

(1) Trachoma, stage I, follicles, or trachoma, stage II (a), follicles on the conjunctiva of the tarsus or of the retro-tarsal folds.

(2) Cicatrization of the conjunctiva on the tarsus with or without trichiasis-entropion.

(3) Pannus follicles at limbus, especially at the upper third of the circumference of the cornea; these may be single or multiple or ridge-like.

(4) Peripheral pits, especially at the upper third of the circumference of the cornea, due to contraction of tissue after absorption of pannus follicles. (Herbert, T.O.S., 1904; Meyerhof, "Bulletin of the Ophthalmological Society of Egypt," 1908.)

(5) Sclerosis of limbus, especially at the upper third of the circumference of the cornea, due to cicatrization of ridge-like pannus follicles.

(6) Pannus vessels, especially at the upper third of the circumference of the cornea. No case can be said to be free from pannus until the cornea has been examined with a loupe under focal illumination.

In the absence of at least one of these signs the case must not be diagnosed as trachoma. It is, of course, possible that the case has been recently infected with trachoma, the incubation period of which is stated by Greef and also by Meyerhof to be four days. Here the patient may disseminate contagion at the end of the incubation period, but may not have acquired distinctive clinical signs of the disease. The differential diagnosis of follicular conjunctivitis, a disease over which so much controversy has raged, now becomes easy, this condition being one in which there is a chain of follicles on the conjunctiva of the lower lid unaccompanied by any of the above-mentioned signs of trachoma.

The cause for the transformation of trachoma stage I into trachoma stage II (a) is unknown, but will perhaps be found later to depend on an inflammatory reaction provoked by an attack of gonococcal conjunctivitis.

The small grey follicles of trachoma stage I are remarkably resistant to any form of treatment, while the gelatinous contents of the cyst-like trachoma stage II (a) follicles respond readily to mechanical expression followed by treatment with some cauterizing agent.

The mechanical treatment for trachoma stage II (a) consists in squeezing with Graddy's forceps the everted lid in order to burst the swollen follicles and evacuate their gelatinous contents; scraping with a sharp spoon should be performed only rarely and in selected cases.

Chloroform should be used only when necessary. Frequently local anæsthesia brought about in the following manner may be employed:—

- (1) Instil cocaine solution two per cent and wait three minutes.
- (2) Instil cocaine solution two per cent and wait three minutes.
- (3) Evert the lid and inject a few drops of the usual cocaine and adrenaline solution (cocaine one per cent, adrenaline chloride 0.0003 per cent) at the retro-tarsal fold, and if possible between the conjunctiva and the tarsus, and wait four minutes.

Subsequent to the expression operation the palpebral conjunctiva should then be painted with perchloride of mercury solution one per cent, and the patient should subsequently bathe the eyes with eusol solution for not less than an hour.

(4) BLINDNESS IN EGYPT (see Tables XIV to XX).

More than twelve thousand patients (12,815) were examined during 1919 who were found to be blind in one or both eyes. Those who were completely blind in both eyes numbered more than four thousand (4,278).

The cause of blindness in the great majority of cases is acute ophthalmia caused by one of the bacteria which produce this condition, usually the gonococcus. Trachoma is an infrequent cause; here blindness results in one of several ways: (a) by the formation of thick fleshy pannus; (b) by giving way of the cornea under the normal ocular tension and formation of keratonus or anterior staphyloma; (c) by destruction of Bowman's membrane by pannus and subsequent opacity of the cornea. The sequelæ of trachoma which may cause blindness are trichiasis-entropion and xerosis. The corneal epithelium is injured by the continual rubbing of the lashes and becomes cicatrized and opaque, or ulceration may occur leading to the same result. The corneal opacity which results from xerosis is a frequent cause of blindness in Egypt owing to the large number of cases of lagophthalmos which result from badly performed operations by charlatans.

Acute ophthalmia leads to blindness by causing ulceration of the cornea with subsequent: (1) cicatrization leaving a dense leucoma; (2) perforation of the cornea, incarceration of the iris, and secondary glaucoma; (3) perforation of the cornea, extrusion of the contents of the globe, and shrinking; (4) blocking of the pupil by adhesion of the iris to the cornea or by inflammatory exudate; (5) formation of secondary cataract.

The percentage of blindness among the new cases which apply for treatment at the various hospitals varies considerably, from eight per cent at Shibîn el Kôm to twenty-per cent at Aswân and twenty per cent at Minya and Asyût. As I said in the last report the higher rate is significant of great care and industry on the part of the medical officer responsible for making the clinical notes.

The percentage of blindness among out-patients who apply for treatment at ophthalmic hospitals does not correspond at all to the percentage of blindness enumerated during the census of 1917. It is clear that the out-patients department of a hospital is not a normal population; it is also probable that the census misses a large number of blind, for many persons are disinclined to state the infirmities of themselves or of their relations. The one calculation therefore is very much too high, and the other is a good deal too low.

The census shows that Upper Egypt is less affected than Lower Egypt by 0.3 per cent, that the total incidence is 4.35 per cent, that Faiyûm is the most severely affected province (about 6.5 per cent), and Qena the least affected province (3.0 per cent). Alexandria comes out with less than two per cent, as was to be expected with such a large European population, and Cairo with nearly four per cent.

The age at which patients become blind is of great importance for a study of the prophylaxis of blindness, and attention will be paid to the matter. I may simply mention the extreme rarity of ophthalmia neonatorum in Egypt, an observation which, together with the amenability of gonococcal conjunctivitis to treatment, drew my attention to the possibility of the so-called gonococcus being either a different organism to the European gonococcus or the same organism reduced in virulence. As I have already stated, a research on this subject is in progress.

Besides conjunctival conditions there are three other main causes of blindness in Egypt. These are primary glaucoma, cataract, and optic atrophy.

(5) GLAUCOMA.

The total number of cases of primary glaucoma examined was 1,715. The operations performed were trephining with iridectomy 450, iridectomy 299.

The frequency of the condition may be judged by the calculation that two per cent of all the patients actually seen at the Egyptian hospitals during last year were exhibiting signs

of simple glaucoma. Only forty-nine acute cases and forty-nine sub-acute cases were met with.

Operation is advised and performed in all healthy eyes in which there is definite glaucoma in the fellow.

INCIDENCE OF PRIMARY GLAUCOMA.

VARIETIES.	1914	1915	1916	1917	1918	1919	TOTAL.
Acute	17	8	19	12	12	49	117
Sub-acute	23	28	15	38	45	49	198
Chronic	574	396	436	552	637	1,617	4,212
Absolute	1,147	1,194	1,113	1,842	1,518	1,000	7,814
TOTAL... ..	1,761	1,626	1,583	2,444	2,212	2,715	12,341
Total number of patients examined	75,398	71,930	94,447	100,410	90,668	83,577	516,430
Per cent of glaucoma cases	2.33	2.26	1.67	2.43	2.44	3.25	2.39
Per cent of absolute glaucoma cases	1.52	1.66	1.17	1.83	1.67	1.19	1.51
Operations :—							
Iridectomy... ..	25	30	78	153	203	299	788
Trephining with iridectomy ...	428	464	534	655	509	450	3,040

(6) OPTIC ATROPHY.

Optic atrophy, of which 136 cases were seen in 1919, has been mentioned in several of these reports in recent years as a frequent cause of blindness. The classification adopted has allowed a large number of cases to be noted as of unknown origin :—

1. Post neuritic, <i>i.e.</i> after optic neuritis... ..	37
2. Consecutive to disease of retina or choroid	30
3. Primary, due to Tabes	4
Dis. sclerosis... ..	4
Diabetes... ..	—
Acute fevers... ..	43
Arteriosclerosis	1
4. Unknown	17
-TOTAL	136

A new classification has been adopted which, it is hoped, in future years will tend towards the elimination of unknown causes by adopting a more systematic study of each case. This classification is given together with a few suggestions or memoranda which should be available at the time of the ophthalmoscopic examination (*see* Tables XXI and XXII).

(7) CATARACT.

To hear that during last year we saw 1,498 cases of senile cataract may excite some envy on the part of European ophthalmic surgeons, but unfortunately so many of the cases are already spoiled from an operative point of view by the complications of acute conjunctivitis and trachoma.

The number of operations performed for the removal of senile cataract by extraction with iridectomy was 354, by extraction after previous iridectomy 10 ; in 272 cases needling of capsule was required ; there is not more difficulty than in England in getting patients who require it to submit to needling.

As it is believed that only by a careful study of the results of his operations an operator can appreciate his craftsmanship, each surgeon is required to send in annually a report of his work on a special form ; this is more to ensure that the surgeons learn from their own cases than to exercise any control over them (Table XXIII). A typical series of results is given ; it was prepared in 1918 without any thought of publication. It is to be remembered that many of the patients are not merely totally uneducated, but of very low mentality ; also that many of them think it bad luck to state their full visual acuity. Also that practically all of them had some degree of pannus and very many of them had *nebulæ* or *leucomata*, the result of previous attacks of acute conjunctivitis. Those in which definite complications were noted before operation, such as fundus disease in the other eye, incurable blepharitis, adherent leucoma, old iritis, albuminuria, etc., are usually starred.

No cases are operated on until a smear from the conjunctiva has become negative under treatment, as few of the cases are ready for operation without at least several days' treatment.

The extreme frequency of glaucoma made it important to determine what effect on the immediate result of cataract operations the presence of definite signs of glaucoma in one or other eye had. Table XXIV, prepared similarly to that of the cataract cases, makes an interesting comparison, showing that the presence of glaucoma has a definitely complicating effect. While all the cataract operations were performed by one operator (A.F.M.C.), the glaucomatous cases were operated on by a number of different surgeons not all of equal experience. Without being exactly comparable, the reports are interesting, as it is not common to find so many cataract extractions in glaucomatous patients collected together. A few cases by a single operator (A.F.M.C.) are given in Table XXV.

As might be expected in a country where there is so much corneal ulceration, anterior polar cataract is common, 380 cases having been seen during the year. 170 cases of soft cataract were noted. Lamellar cataract is comparatively rare in Egypt, and it is surprising to find that so many as twenty-nine cases were noted. Eight cases of congenital cataract were seen. The operation of couching the lens is still occasionally performed by travelling quacks, though much less frequently than at the time of the inception of ophthalmic hospitals ; it is followed usually by blindness owing to the supervention of glaucoma.

(8) PATHOLOGICAL REPORT.

The Pathological Laboratory at Gîza adjoining the stationary hospital has increased in utility very greatly since its removal to Gîza, where it adjoins the stationary hospital. The accommodation is being increased by private liberality to provide increased teaching facilities. All material of interest from a pathological view is sent here from the eighteen hospitals for examination by the ophthalmic inspector who is the acting pathologist, Dr. M. Subhy. However, all smears examined under the oil-immersion lens for diagnostic purposes continue to be dealt with at the various hospitals, only those which present some difficulty or special interest being sent to the laboratory.

242 specimens were hardened and cut, of which twenty-nine proved to be malignant tumours and fifteen benign tumours (*see* Table XXVI).

(9) THE OPHTHALMOLOGICAL SOCIETY OF EGYPT.

The Ophthalmological Society of Egypt held its annual meeting at the School of Medicine on March 5. The programme was as follows :—

List of Communications.

Dr. Fischer : " The Prophylaxis of Trachoma."

Dr. MacCallan : " The Diagnosis of Trachoma."

Dr. Yousef Yacoub : " Vascularization of the Cornea with Special Reference to Trachomatous Pannus."

- Dr. A. Abboudy : " Treatment of Corneal Ulcers in Trachomatous Lids."
 Dr. Girgis : " Parenchymatous Keratitis."
 Dr. Z. Seddik : " Fleshy Pannus and its Treatment."
 Dr. Jacovides : " Two Cases of Foreign Body in the Globe and their Conservative Treatment."
 Dr. Cassimatis : " Hereditary Lamellar Cataract."
 Dr. A. Barsoum : " Three Cases of Dislocation of Lens."
 Dr. Sobhy : " A Case of Monilethrix."
 Dr. Mahmud Riad : " Description of a Peculiar Case of Congenital Amaurosis in Twine."
 Dr. Gamaleddin : " Ophthalmic Treatment and Natural Methods of Healing."
 Dr. MacCallan : " Gonococcal Ophthalmia in Egypt."
 Dr. Sobhy : " Two Cases of Ophthalmia Neonatorum."
 Dr. MacCallan : " A Short Account of the History of Ophthalmology in Egypt compiled from Various Sources."
 Dr. Gamaleddin : " Suggestions for the Amelioration of Blindness in Egypt."

The Society has a membership of seventy-four, and is affiliated to the Ophthalmological Society of Great Britain and Ireland. The Society publishes its transactions in the Annual Bulletin of the Ophthalmological Society of Egypt; copies may be obtained from the Hon. Secretary of the Society, c/o Department of Public Health : price P.T. 20 (or 4s. 6d.) post free.

IV.—OPHTHALMIC TREATMENT IN SCHOOLS.

The ophthalmic treatment in schools, which commenced at Tanta in the year 1907, is now carried out at all the capital towns of provinces where there is an ophthalmic hospital. The active or serious stages of trachoma have been reduced from sixty-two per cent to eight per cent since treatment has been in force.

I have previously pointed out that trachoma appears to be closely related to the age of the pupils, the more serious stages being common in the first school year and less common in the fourth year. This is the result of the gradual process of cicatrization which the life-history of the disease manifests. These serious stages diminish from 31·2 per cent in the first year, 14·8 per cent in the second year, 8·5 per cent in the third year, to 7·6 per cent in the fourth year. These percentages closely resemble those obtained for previous years and may be taken therefore as fairly accurate. These details for the past three sessions in which treatment have been carried out are here given :—

COMPARISON OF SERIOUS STAGES OF TRACHOMA STAGES I AND II.

CLASS.	Per Cent.		
	1916-1917	1917-1918	1919-1920
First year	45·5	41·7	31·2
Second „	28·1	15·3	14·8
Third „	12·1	9·8	8·5
Fourth „	6·7	2·3	7·6

It is interesting to note that Faiyûm school in 1917 had 26·6 per cent of serious stages, which is a larger percentage than the other schools back to 1914-1915, though not so high as at Tanta school in 1907-1908. The form of treatment adopted at Faiyûm was merely the application of antiseptic drops, yet, in the course of the session, it is reported that the more serious stages were reduced to 7·7 per cent.

Spectacles have been ordered for 242 pupils. On the day of the general inspection, 155 pupils were wearing their correction, sixty-six pairs of spectacles were on order or under repair, while twenty-one pupils were not wearing their glasses either because they did not like them or because they had forgotten them at home. This result is satisfactory as compared with the years 1913 and 1914. It is a matter of great importance to note that thirty-seven per cent of the pupils have insufficiently good vision to enable them to attain to the very low visual standards demanded for candidates to ranks of the pensionable civil service ($6/12$ and $6/12$ or $6/6$ and $6/18$). This defect of vision can only in certain cases be corrected by spectacles: 113 pupils were enabled to attain to the Government standard, while 129 pupils who were refracted under atropin failed to reach this degree of vision.

The deficient vision is due in a large number of cases to corneal opacity (fifteen per cent of all the pupils have an opacity in one or both corneæ); this opacity in some cases is due to cicatrization after ulceration, and in other cases to trachomatous pannus. In yet other cases to ametropia, frequently astigmatic. The maintenance of a satisfactory correction of the ametropia is not an easy matter, considering the changing curvature of the cornea occurring during the cicatrization of trachoma, and the difficulty and expense of providing glasses under post-bellum conditions.

IV.—STATISTICAL SECTION.

TABLE I.—SYNOPSIS OF WORK OF HOSPITALS SINCE 1904.

Hospitals in existence :—	1904 to *1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
Travelling	2	2	2	3	4	5	4	—	4	4	5	5
Permanent	1	1	1	2	4	7	10	11	13	13	13	13
New patients treated	29,731	12,092	14,342	20,488	28,029	40,670	50,126	52,752	68,304	81,529	82,316	76,525
Total attendances of out-patients	439,031	177,761	190,247	236,411	341,211	544,267	686,012	735,919	849,366	903,751	922,614	906,961
Operations performed	22,828	9,930	11,486	14,322	21,315	30,648	40,710	42,146	54,205	59,581	54,277	49,974
In-patients	783	390	443	678	909	1,807	2,071	2,274	2,454	2,847	3,264	3,613
Details :—												
Patients examined	19,614	22,373	25,514	31,274	43,668	62,233	75,398	71,930	94,447	100,410	90,668	83,577
Patients regularly treated	7,794	12,092	14,342	20,488	28,029	40,670	50,126	52,752	68,304	81,529	82,316	76,525
Incurable cases	4,550	2,302	1,776	2,620	7,200	9,544	10,554	7,765	9,871	9,675	5,650	4,467
Blind in one eye... ..	1,189	2,116	2,438	3,196	4,115	5,360	6,425	5,637	7,042	9,385	8,969	8,537
Blind in both eyes	852	1,385	3,010	2,811	2,824	3,878	3,591	2,992	3,504	4,611	4,261	4,278
Trichiasis cases examined	8,159	10,060	7,507	7,871	13,176	17,329	21,624	19,220	22,214	27,341	26,164	20,052
“ eyes operated on and cured	2,262	3,128	2,022	3,933	6,942	11,700	16,542	19,149	26,094	30,200	28,890	24,611
New patients treated per age :—												
Under 1 year	247	516	457	761	1,495	2,700	2,472	3,023	4,031	5,168	6,434	4,824
From 1 to 5 years	585	1,645	1,497	1,903	3,317	4,631	6,394	5,762	7,865	7,938	8,607	8,562
“ 6 to 10 ”	902	1,442	4,469	2,101	3,210	4,786	5,634	5,229	6,985	9,217	9,213	9,097
“ 11 to 15 ”	849	1,294	1,475	2,051	3,056	3,799	4,570	5,651	6,275	7,965	8,483	7,479
“ 16 to 20 ”	829	1,156	1,499	2,067	2,588	3,253	3,949	4,491	5,752	6,748	6,826	6,159
“ 21 to 40 ”	2,584	3,775	4,845	6,116	8,167	12,679	17,257	18,492	23,017	28,028	26,904	25,671
Over 40 years	1,798	2,206	3,100	5,589	6,196	8,822	9,850	10,104	14,379	16,465	15,849	14,733

* In 1904 there was only one travelling ophthalmic hospital and there was no permanent ophthalmic hospital until 1907.

TABLE II.—DETAILS OF CAPITAL EXPENDITURE.

HOSPITALS.	Date at which opened.	Government Grant.	Public Subscription or Private Benefaction.	Provincial Councils.
		L.E.	L.E.	L.E.
No. 1 Travelling	1904	—	1,000	—
No. 2 „	1905	—	1,000	—
Tanta	1908	8,463*	—	—
Asyût	1911	8,817	5,004	—
Mansûra	1912	—	5,000	—
Beni Suef	1912	—	4,000	—
Asyût Travelling	1912	—	—	720
Zagazig	1913	—	—	4,286
Mahalla el Kubra... ..	1913	—	—	2,400
Kafr el Zaiyât	1913	—	—	2,200
Daqahliya Travelling	1913	—	—	720
Damanhûr	1914	—	—	5,000
Shibîn el Kôm	1914	—	5,422	—
Sohâg	1914	960	4,000	—
Minya	1915	—	—	5,500
Santa	1915	—	—	2,600
Faiyûm	1916	—	—	4,000
Gîza Stationary	1918	—	—	1,500
Benha	1920	—	14,000	—
Qena... ..	—	—	12,400	3,621
Total... ..		18,240	51,826	32,547
GRAND TOTAL		18,240	84,373	

* The contractor who built the hospital lost L.E. 942 which above has been added to the contract price.

TABLE III.—NEW PATIENTS TREATED PER MONTH DURING 1919.

January	4,039
February	4,540
March	5,105
April	4,616
May... ..	6,189
June	5,212
July	9,906
August	9,207
September	8,322
October	7,757
November	7,341
December	4,291
TOTAL	76,525

TABLE IV.—NUMBER OF PATIENTS TREATED AND OPERATIONS PERFORMED AT THE
OPHTHALMIC HOSPITALS DURING 1919.

HOSPITALS.	PATIENTS TREATED.	HOSPITALS.	OPERATIONS PERFORMED.
Tanta	6,779	Tanta	3,563
Asyût	6,173	No. 3 Travelling, Barrage	3,523
No. 2 Stationary, Gîza	5,454	No. 2 Stationary, Gîza	3,423
Minya	5,208	Minya	3,378
Shibîn el Kôm	5,172	Shibîn el Kôm	3,224
Faiyûm	5,012	Faiyûm	3,198
Mansûra	4,834	Asyût	3,154
Zagazig	4,636	Sohâg	3,074
Beni Suef	4,487	Mansûra	2,993
Damanhûr	4,104	Zagazig	2,916
No. 3 Travelling, Barrage	4,088	Daqahliya Travelling	2,800
Daqahliya Travelling	3,645	Beni Suef	2,749
Sohâg	3,517	Kafr el Zaîyât	2,291
Mahalla el Kubra	3,185	Mahalla el Kubra	2,128
Kafr el Zaîyât	3,033	Damanhûr	2,017
No. 1 Travelling, Aswân	2,491	No. 1 Travelling, Aswân	1,990
Asyût Travelling	2,434	Santa	1,977
Santa	2,273	Asyût Travelling	1,576
TOTAL	76,525	TOTAL	49,974

TABLE V.—AVERAGE NUMBER OF OPERATIONS PERFORMED PER MONTH AT THE
OPHTHALMIC HOSPITALS DURING 1919.

HOSPITALS.	MAJOR.	HOSPITALS.	MINOR.
Zagazig	179	Tanta	158
No. 3 Travelling, Barrage	177	Daqahliya Travelling	150
Asyût	174	No. 2 Stationary, Gîza	135
Shibîn el Kôm	170	Minya	129
Mansûra	168	No. 3 Travelling, Barrage	116
Beni Suef	165	Faiyûm	104
Faiyûm	162	Sohâg	103
Daqahliya Travelling	160	Shibîn el Kôm	98
Sohâg	153	Asyût	88
Minya	152	Mahalla el Kubra	83
No. 2 Stationary, Gîza	149	Mansûra	80
Tanta	139	Asyût Travelling	77
Asyût Travelling	133	Kafr el Zaîyât	71
Kafr el Zaîyât	120	No. 1 Travelling, Aswân	67
Damanhûr	119	Beni Suef	64
No. 1 Travelling, Aswân	119	Zagazig	63
Mahalla el Kubra	110	Santa	54
Santa	110	Damanhûr	48

TABLE VI.—CONJUNCTIVAL MICRO-ORGANISMS FOUND DURING 1919.

ORGANISMS.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	TOTAL.
Goconoccus ...	90	81	89	104	253	292	532	643	857	1,044	934	280	5,199
Koch-Weeks ...	68	116	136	197	314	307	394	303	312	329	303	99	2,878
Morax-Axenfeld ...	52	88	117	79	125	82	164	138	200	146	142	94	1,427
Pneumococcus ...	17	11	13	32	27	24	30	52	57	40	45	13	361
Xerosis ...	9	7	13	12	13	7	10	21	34	42	38	28	234
Staphylococcus ...	1	—	—	2	4	7	4	3	1	—	—	1	23
Micrococcus ...	—	7	9	4	4	8	1	—	2	—	—	2	37
Streptococcus ...	—	—	—	—	1	4	2	2	1	1	—	—	11
Other organisms ...	1	4	3	5	2	—	2	11	11	—	2	—	41
TOTAL ...	238	314	380	435	743	731	1,139	1,173	1,475	1,602	1,464	517	10,211
Negative ...	91	118	106	77	108	136	157	182	231	182	254	135	1,777
GRAND TOTAL ...	329	432	486	512	851	867	1,296	1,355	1,706	1,784	1,718	652	11,988

TABLE VII.—RELATION OF VARIOUS CONJUNCTIVAL MICRO-ORGANISMS TO MONTHLY INCIDENCE OF ULCERATION OF CORNEA.

	GONOCOCCUS.			KOCH-WEEKS.			PNEUMOCOCCUS.			MORAX-AENFELD.			MIXED INFECTION.		
	No Ulceration.	Ulceration occurring in		No Ulceration.	Ulceration occurring in		No Ulceration.	Ulceration occurring in		No Ulceration.	Ulceration occurring in		No Ulceration.	Ulceration occurring in	
		New Patients.	Patients under Treatment.		New Patients.	Patients under Treatment.		New Patients.	Patients under Treatment.		New Patients.	Patients under Treatment.		New Patients.	Patients under Treatment.
January ...	13	10	1	19	3	—	3	4	—	7	7	—	4	1	—
February ...	4	7	—	36	5	—	1	2	—	12	17	—	5	3	—
March ...	10	6	—	43	12	—	3	2	—	35	12	—	8	—	—
April... ..	13	9	—	53	5	—	3	1	—	11	10	—	5	1	—
May	58	34	—	118	17	—	5	8	—	47	43	—	4	4	—
June	67	20	—	94	10	—	9	2	—	28	12	—	10	1	—
July	78	37	2	100	14	—	3	5	—	33	21	—	13	3	—
August ...	199	57	3	105	17	—	8	4	—	37	17	—	9	4	—
September ...	248	83	3	79	11	—	5	1	—	42	10	—	13	5	—
October ...	256	121	2	129	27	—	8	9	—	31	14	—	30	15	—
November ...	177	82	1	73	11	—	14	1	—	36	10	—	48	17	—
December ...	33	23	—	21	5	—	3	—	—	11	13	—	14	6	—
TOTAL... ..	1,156	489	12	870	137	—	65	37	—	330	185	—	163	60	—

TABLE VIII.—AVERAGE TEMPERATURE.

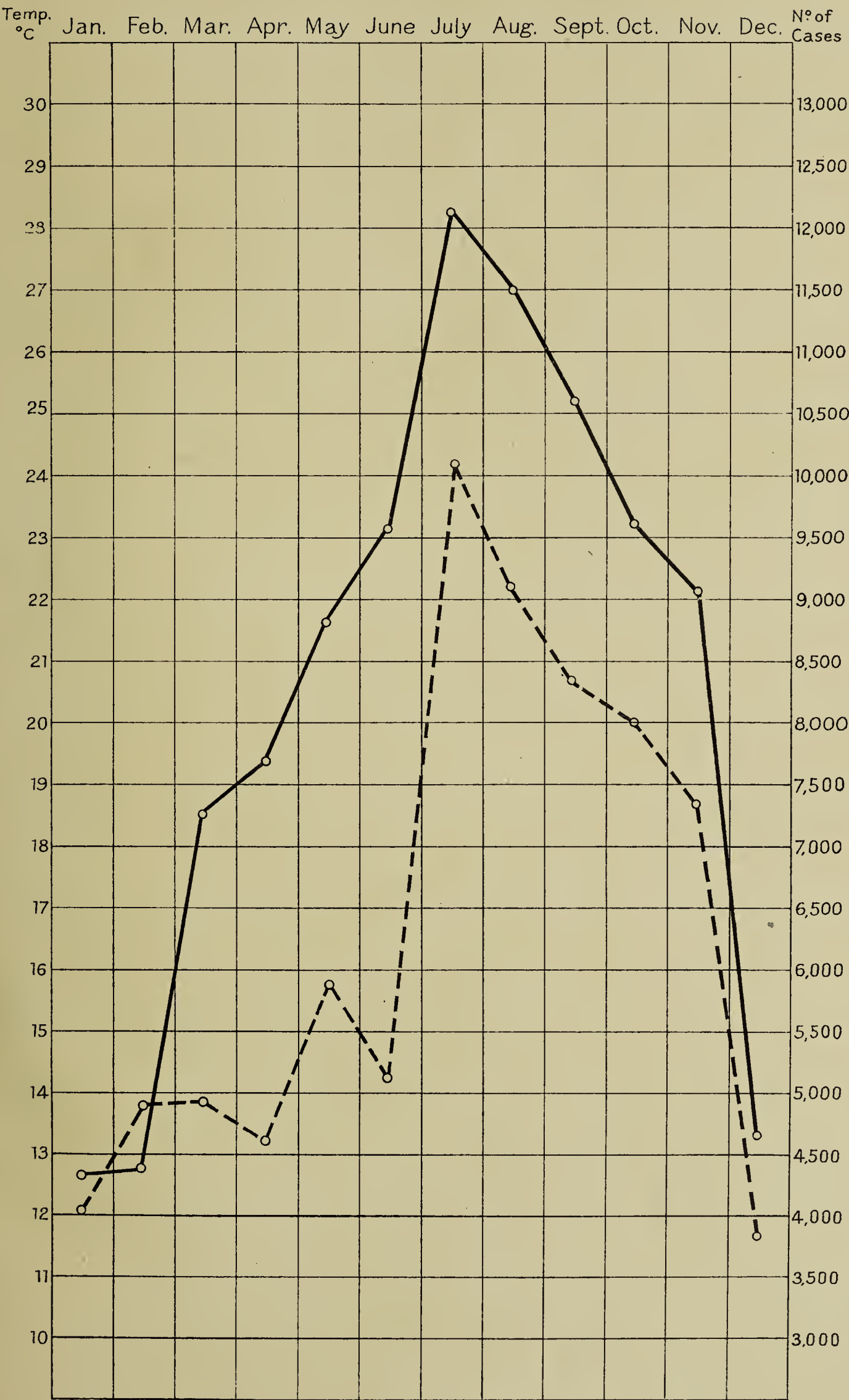
The average temperature was arrived at by taking one place in Lower Egypt (Qorashîya) and one place in Upper Egypt (Asyût) and obtaining an average figure from the mean temperature at each place on the 1st and 16th of each month. This is shown in appended table, the readings being in degrees centigrade.

MONTH.	QORASHÎYA.*		ASYÛT.*		AVERAGE.
	1st.	16th.	1st.	16th.	
January	11·2	12·5	12·0	15·0	12·7
February	9·5	14·7	13·0	14·1	12·8
March	13·8	18·8	17·0	24·5	18·5
April	16·0	17·2	23·0	21·2	19·4
May	19·0	19·8	25·0	22·5	21·6
June... ..	19·9	23·0	23·1	26·3	23·1
July	24·8	27·4	29·7	31·4	28·3
August	26·3	24·9	29·7	27·0	27·0
September	24·0	23·4	27·0	26·2	25·2
October	21·4	24·2	23·0	24·3	23·2
November	23·1	18·9	26·8	19·8	22·2
December	15·8	10·4	15·8	11·2	13·3

* Mean of day = $\frac{8h + 14h + 20h + \text{Min.}}{4}$

Table 9

TEMPERATURE AND NUMBER OF NEW PATIENTS TREATED

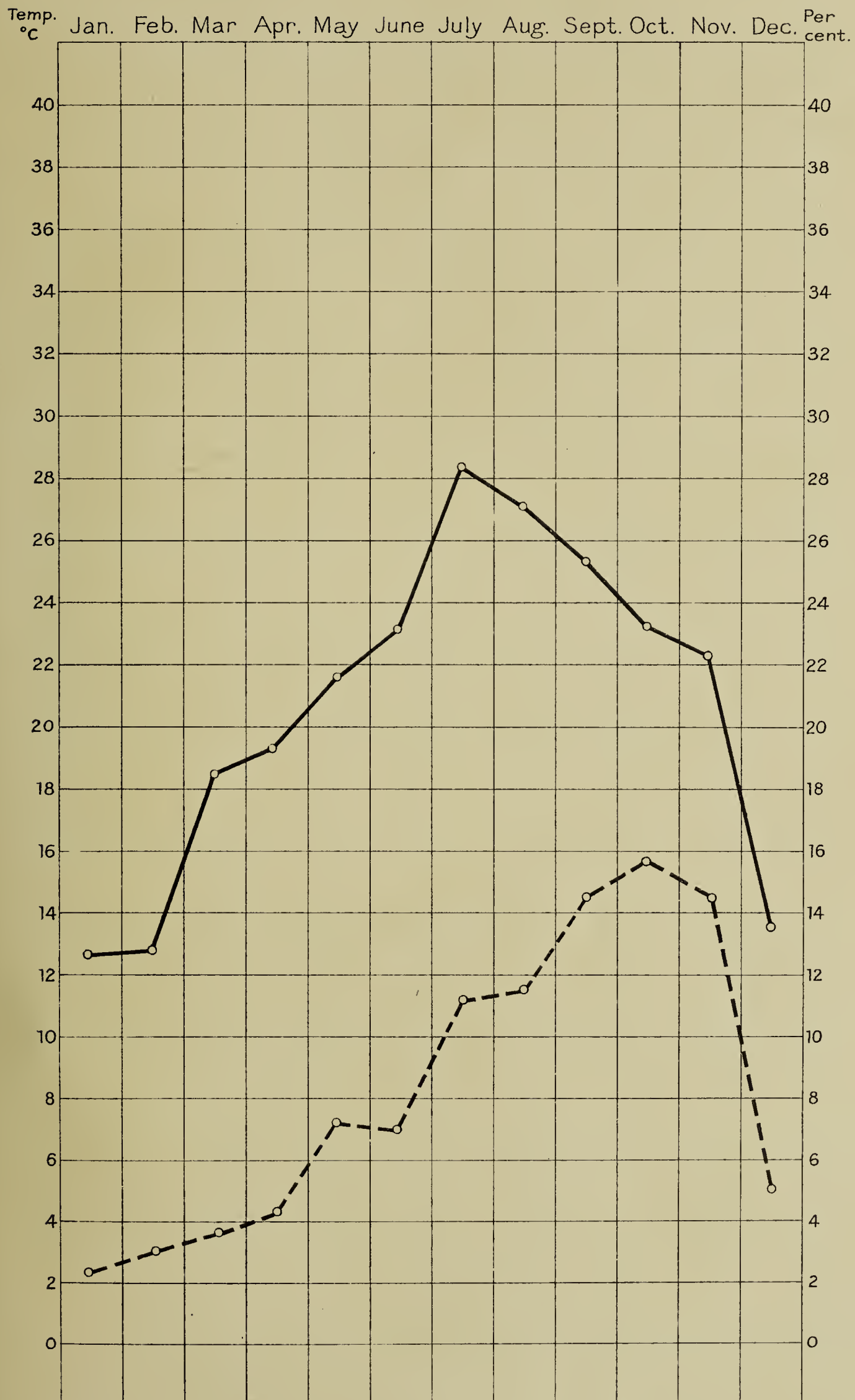


— Average temperature in degrees centigrade.

- - - New patients treated per month

Table 10

TEMPERATURE AND POSITIVE EXAMINATIONS



— Average temperature in degrees centigrade.
- - - Percentage monthly of positive examinations on total of all microorganisms found during the year.

Table II

TEMPERATURE AND GONOCOCCUS



(a) ————— Temperature in degrees centigrade.

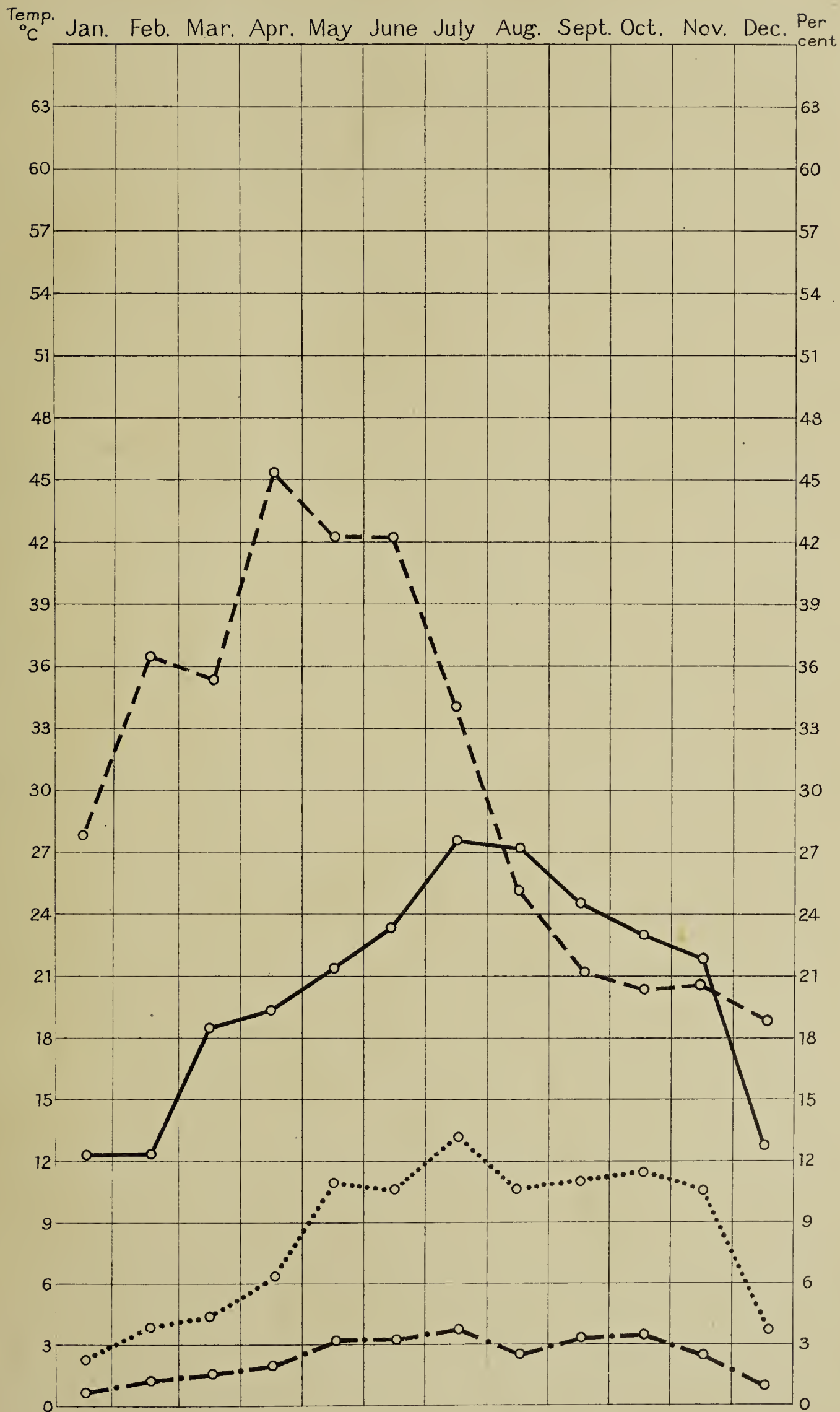
(b) - - - - - Percentage of gonococcal findings on monthly total of microorganisms found.

(c) Monthly percentage of gonococcal findings on total of all microorganisms found during the year.

(d) Monthly percentage of gonococcal findings on total of gonococcal findings during the year.

Table 12

TEMPERATURE AND KOCH-WEEKS



- (a) ————— Average temperature in degrees centigrade.
- (b) - - - - - Percentage of Koch-Weeks bacillus findings on monthly totals of microorganisms.
- (c) - . - . - . - Percentage of Koch-Weeks bacillus findings on monthly total of all microorganisms found during the year.
- (d) Monthly percentage of Koch-Weeks bacillus on total of Koch-Weeks bacillus findings during the year.

Table 13

TEMPERATURE AND MORAX AXENFELD



- (a) ————— Average temperature in degrees centigrade.
(b) - - - - - Percentage of Morax-Axenfeld bacillus on monthly totals of microorganisms found.
(c) - Percentage of Morax-Axenfeld bacillus on total of all microorganisms found during the year.
(d) Monthly percentage of Morax-Axenfeld bacillus on total of Morax-Axenfeld bacillus finding during the year.

TABLE XIV.—BLINDNESS AMONG OUT-PATIENTS SINCE 1906.

YEAR.	TOTAL NUMBER OF PATIENTS EXAMINED.	ONE EYE.		BOTH EYES.		ONE EYE AND BOTH EYES.	
		Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
1906	40,103	1,297	3·2	663	1·6	1,960	4·9
1907	24,416	1,450	5·9	697	2·8	2,147	8·7
1908	19,614	1,189	6·0	852	4·3	2,041	10·4
1909	22,373	2,116	9·4	1,385	6·1	3,501	15·6
1910	25,506	2,438	9·5	2,010	7·8	4,448	17·4
1911	31,274	3,196	10·2	2,811	8·9	6,007	19·2
1912	43,668	4,115	9·4	2,824	6·4	6,939	15·8
1913	62,233	5,360	8·6	3,878	6·2	9,238	14·8
1914	75,398	6,425	8·5	3,591	4·7	10,016	13·2
1915	71,930	5,637	7·8	2,992	4·2	8,629	12·0
1916	94,447	7,042	7·4	3,504	3·7	10,546	11·2
1917	100,410	9,385	9·3	4,611	4·6	13,996	13·9
1918	90,668	8,969	9·0	4,261	4·7	13,230	14·6
1919	83,577	8,537	10·2	4,278	5·1	12,815	15·3
TOTAL... ..	785,617	67,156	8·5	38,357	4·9	105,513	13·4

TABLE XV.—TOTAL PERCENTAGE OF BLINDNESS IN ONE OR BOTH EYES.

	1914	1915	1916	1917	1918	1919
PERMANENT HOSPITALS :—						
Tanta	11·0	8·1	5·3	9·2	8·8	12·05
Asyût	14·2	10·1	11·7	18·4	20·2	20·7
Mansûra	18·6	15·3	16·6	13·2	13·9	18·2
Beni Suef	16·7	16·3	13·2	16·0	16·9	18·9
Zagazig	15·9	11·1	9·3	15·0	15·9	19·6 *
Damanhûr	16·8	11·4	11·8	13·5	12·9	10·8
Shibîn el Kôm	18·5	11·9	11·8	10·2	12·3	8·2
Sohâg	19·7	15·3	14·3	14·03	14·7	13·9
Minya	—	22·06	20·7	30·7	20·6	20·6
Faiyûm	—	—	11·06	13·0	18·2	17·7
Mahalla el Kubra	13·6	16·4	17·03	12·2	12·3	12·5
Kafr el Zaiyât	7·8	10·5	8·3	12·6	10·1	11·4
Santa	—	—	10·06	13·7	14·2	15·6
TRAVELLING HOSPITALS :—						
No. 1 Travelling :—						
Shibîn el Qanâtir	21·7	11·8	—	—	—	—
Mîna el Qamb... ..	15·0	—	—	—	—	—
Kafr el Dauwâr	—	—	12·7	11·9	—	—
Qena... ..	—	—	—	20·5	18·3	—
Benha	—	—	—	10·7	—	—
Alexandria	—	—	—	—	15·0	—
Aswân	—	—	—	—	12·8	22·7
No. 2 Stationary :—						
Maghâgha	22·9	—	—	—	—	—
Damietta	9·6	—	—	—	—	—
Barrage	—	5·8	—	—	—	—
Giza	—	—	10·5	12·6	11·1	8·44
Rosetta	—	—	—	15·7	—	—
Fuwa	—	—	—	12·6	—	—
Embaba	—	—	—	—	15·6	—
No. 3 Travelling :—						
Barrage	—	—	—	—	15·6	16·5
Asyût Travelling :—						
Manfalût	5·3	6·7	—	8·9	14·7	—
Manfalût	8·3	—	—	—	—	—
Dairût	7·4	—	—	6·4	12·3	—
Mallâwi	5·6	—	6·1	8·2	—	—
Abnûb	—	—	4·1	—	—	—
Abu Tig	—	—	—	9·6	—	17·9
Badâri	—	—	—	—	—	10·5
Daqahliya Travelling :—						
Mît Ghamr	16·5	4·7	7·9	—	8·2	15·3
Matarîya	8·6	—	—	—	—	15·2
Dikirnis	11·2	—	—	10·6	—	—
Fâriskûr	—	—	7·1	—	7·2	13·9
Aga	—	—	—	22·3	14·2	—
Simbillâwein	—	—	—	10·7	—	—

* Increased owing to E.L.C. patients.

TABLE XVI.—BLINDNESS IN EGYPT ACCORDING TO CENSUS, 1907 AND 1917.

	Total Number of Population.	BLIND.			AVERAGE PER 100,000.			PERCENTAGE.		
		One Eye.	Both Eyes.	Total.	One Eye.	Both Eyes.	Total.	One Eye.	Both Eyes.	Total.
1907	11,189,978	363,702	148,280	511,982	3,250	1,325	4,575	3,250	1,325	4,575
1917	12,718,255	398,757	155,511	554,268	3,135	1,223	4,358	3,135	1,223	4,358

TABLE XVII.—PERCENTAGE OF BLINDNESS IN EGYPT ACCORDING TO CENSUS OF 1917.

GOVERNORATES AND MUDIRIAS.	Population.	Blind in One Eye.	Blind in Both Eyes.	Total.	Percentage Total Blindness.
Cairo	790,939	19,931	10,516	30,447	3·85
Alexandria... ..	444,617	5,282	2,883	8,165	1·83
Port Said	91,090	1,611	645	2,256	2·47
Damietta	30,984	487	377	864	2·79
Suez	30,996	632	241	873	2·81
Frontier Districts	47,841	728	607	1,335	2·83
Beheira	892,246	32,152	10,639	42,791	4·79
Gharbiya	1,659,313	59,175	22,387	81,562	4·91
Daqahliya	986,643	28,826	12,662	41,488	4·20
Minûfiya	1,072,636	38,682	12,347	51,029	4·75
Sharqiya	955,497	33,716	12,340	46,056	4·82
Qalyûbiya	528,581	15,912	6,294	22,206	4·20
Gîza	524,352	16,210	6,341	22,551	4·30
Faiyûm	507,617	25,197	7,731	32,928	6·48
Beni Suef	452,893	17,717	5,126	22,843	5·04
Minya... ..	763,922	33,581	9,592	43,173	5·65
Asyût	981,197	29,692	13,372	43,064	4·38
Girga	863,234	17,831	8,965	26,796	3·10
Qena	840,317	16,908	8,729	25,637	3·05
Aswân... ..	253,340	4,487	3,717	8,204	3·23
Governorates	1,436,467	28,671	15,269	43,940	3·06
Lower Egypt	6,094,916	208,463	76,669	285,132	4·68
Upper Egypt	5,186,872	161,623	63,573	225,196	4·37
TOTAL... ..	12,718,255	398,757	155,511	554,268	4·35

TABLE XVIII.—INCIDENCE OF BLINDNESS AMONG OUE-PATIENTS ACCORDING TO THE AGE OF EACH PATIENT SEEKING TREATMENT.

HOSPITAL.	Under 1 year.	From 1-5.	From 6-10.	From 11-15.	From 16-20.	From 21-40.	Over 40 Years.	Total.
No. 1 Travelling	—	11	11	22	52	175	327	598
No. 2 Stationary	4	22	20	20	23	215	169	473
No. 3 Travelling	7	20	42	50	50	205	342	716
Tanta	18	64	36	46	46	354	333	897
Asyût	20	51	54	55	76	605	522	1,383
Mansûra	9	75	66	70	45	393	230	888
Beni Suef	20	50	24	76	56	329	330	885
Zagazîg	7	18	24	60	103	360	339	911
Damanhûr	2	29	16	23	24	176	174	444
Shibîn el Kôm	3	16	23	24	27	165	169	427
Sohâg	5	30	27	42	37	283	308	732
Minya... ..	26	49	62	66	66	419	484	1,172
Faiyûm	24	20	45	41	40	351	458	979
Mahalla el Kubra	6	20	18	27	22	162	165	420
Kafr el Zaiyât	3	14	38	20	26	194	53	348
Santa	11	17	28	21	35	120	129	361
Asyût Travelling	12	21	32	55	16	169	203	508
Daqahliya Travelling	7	30	77	40	16	174	329	673
Total	184	557	643	758	760	4,849	5,064	12,815

TABLE XIX.—PERCENTAGE OF BLINDNESS IN ONE OR BOTH EYES PER AGE
AT WHICH PATIENT SOUGHT TREATMENT.

	Per Cent of Total examined.	Per Cent of Total Blind.	Per Cent of Patients of this Age.
Under one year	0·22	1·43	3·81
From 1 to 5 years	0·66	4·34	6·50
„ 6 „ 10 „	0·76	5·01	7·06
„ 11 „ 15 „	0·90	5·13	10·13
„ 16 „ 20 „	0·90	5·92	12·33
„ 21 „ 40 „	5·80	38·38	18·88
Over 40 years	6·05	39·51	34·36

TABLE XX.—CAUSES OF BLINDNESS.

	1914	1915	1916	1917	1918	1919	TOTAL.	Per Cent.
Congenital... ..	10	7	3	4	8	18	50	0·06
Acquired :—								
Conjunctivitis resulting in :—								
(a) Total corneal opacity	3,170	2,759	2,861	3,665	3,569	4,647	20,671	25·47
(b) Shrunken globe... ..	2,857	2,317	3,109	3,923	3,713	3,994	19,913	24·53
(c) Secondary glaucoma... ..	1,977	1,815	2,032	2,498	2,480	2,351	13,153	16·20
(d) Other conditions	1,094	745	859	1,577	1,483	1,021	6,779	8·35
Fundus :—								
Optic atrophy	119	90	145	178	195	136	863	1·06
Retinitis pigmentosa	19	12	23	22	24	28	128	0·15
Various	184	182	152	254	194	189	1,155	1·42
Glaucoma absolutum :—								
Monocular	638	657	696	893	751	541	4,176	5·14
Binocular	513	650	673	903	720	459	3,918	4·82
Blind but not absolute :—								
Monocular	—	—	—	—	—	236	236	0·29
Binocular	—	—	—	—	—	54	54	0·06
Cataract	862	797	1,053	1,201	1,287	1,211	6,411	7·90
Injury	47	70	56	148	92	108	521	0·64
Operation	19	17	32	52	34	26	180	0·22
Infectious diseases	19	19	2	32	11	28	111	0·13
Iritis endogenous	165	94	160	277	209	194	1,099	1·35
Various	262	230	241	422	331	247	1,733	2·13
TOTAL... ..	11,955	10,461	12,097	16,049	15,101	15,488	81,151	—

TABLE XXI.—CLASSIFICATION OF THE CAUSES OF OPTIC ATROPHY.

(1) PRIMARY :—

(a) *Spinal diseases.* —

Tabes.
G.P.I.
Dissiminated sclerosis.
Freidreich's ataxia.
Lateral sclerosis.
Amytrophic lateral sclerosis.
Chronic myelitis.
Paralysis agitans.
Spastic paraplegia.

(b) *Arterio-Sclerosis.*

(2) RETRO-BULBAR NEURITIS :—

(a) *Acute.*—In these cases the atrophy may be preceded by slight signs of neuritis.

Local.—Spread of inflammation from neighbouring sinuses.

Hæmorrhage into nerve sheath.

General.—Insular sclerosis.

Infectious disease.

(b) *Chronic.*—In these cases there are no signs of neuritis preceding the atrophy which is similar in appearance to primary atrophy :—

Tobacco and alcohol.

C.S.₂ — Pb. — As. — Iodoform.

CHCl₃ — Chloral — Opium.

Diabetes.

(3) POST-NEURITIC :—

(a) *Degeneration after various forms of optic neuritis.*

(b) *Lebers hereditary optic atrophy.*

(4) RETINITIS.—After disease of retina and choroid (including quinine poisoning).

(5) COMPRESSION OR INJURY OF NERVE.

(6) EMBOLISM OF CENTRAL ARTERY.

(7) UNKNOWN.

TABLE XXII.—OPHTHALMOSCOPIC STUDY OF OPTIC NERVE DISEASE.

In making an ophthalmoscopic study for the purpose of arriving at a diagnosis in suspected cases of optic nerve disease the following details should be noted :—

Condition of Media :—

- | | | |
|---------------|---|---|
| (1) Cornea. | { | Slight opacity in one of these may cause the appearance of blurring of margins and of increased redness of a normal disc. |
| (2) Lens. | | |
| (3) Vitreous. | | |

Optic Disc :—

- (1) Colour.
- (2) Size.
- (3) Shape and margins, oxydate or cicatricial tissue on or round O.D.
- (4) Cupping. —Complete or glaucomatous.
Partial or physiological.
Lamina cribrosa seen or not.

(5) Swelling of O.D.

(a) Actual. — As shown by so many dioptries difference between highest part of vessel on disc and vessels of rest of fundus.

(b) Apparent.—As shown by absence of difference in level between vessels on O.D. and rest of fundus.

(6) *Vascular Appearances :—*

- (a) Size of arteries and veins as compared with normal and with each other.
- (b) Condition of walls, presence of light streak.

Changes in Rest of Fundus.

Accurate Retinoscopy Result.—In hypermetropia without disease the vessels on the disc often appear to be umbrella-like and may actually be raised.

TABLE XXIII.—RÉSUMÉ OF SENILE CATARACT OPERATIONS BY A.F.M.C. DURING 1917.

(1) Ticket numbers 4,980,* 7,943, 7,588, 7,381,* 7,297, 6,724, 7,218, 6,750, 31,059, 30,474, 30,301,* 30,507, 30,446, 31,250, 31,183, 22,895,* 22,781, 22,858, 14,774, 14,586,* 15,333, 15,169,* 14,372, 15,767, 20,090, 19,999, 18,696, 15,925 * (L.A.), 16,201,* 16,174, 15,444,* (Bleph. severe), 14,457, 8,490, 9,382,* 9,148,* 9,684, 9,66', 3,471, 3,033 * (Alb.), 1,309, 1,566, 1,621, 1,788, 1,844, 1,923.*

	Starred Cases.	Non starred Cases.
(2) Visual results with correction :—		
6/6, 6/9, 6/12... ..	—	1
6/18, 6/24	1	8
6/36, 6/60	3	12
6/60, 4/60, 3/60	5	9
2/60, 1/60	3	2
P.L., and no P.L.	1	—
TOTAL... ..	13	32

(3) Vitreous extruded 1

(4) Suppuration resulting in excision —

(5) Cases needled 15

(6) Capsule remained and not needled... .. 3†

(7) Method of opening the capsule :—

Point of knife... .. 32

Cystitome 7

Capsule forceps 6

(8) Cases in which fundus disease found after operation :—

4,980,* 7,381,* 30,301,* 22,895,* 15,169,* 16,201,* 9,148 * 7

* Cases in which complications were noted previously to operation.
† Two cases were sent for but did not come. The third case refused further operation.

TABLE XXIV.—RÉSUMÉ OF CATARACT OPERATIONS ON GLAUCOMATOUS EYES BY
VARIOUS SURGEONS FROM DECEMBER 1, 1909, UNTIL FEBRUARY 13, 1918.

(1) Ticket numbers *22,114,* 31,034, 30,132, 5,586,* 7,754, 30,748, 4,543,* 35,347, 2,931,* 4,157, 1,117, 1,916, 7,827, 9,872, 6,966,* 7,717, 11,302, 15,849, 15,501, 27,201, 31,075, 31,769, 29,414, 29,413, 29,510, 34,333,* 5,671, 4,884,† 4,951, 4,885, 3,199, 3,070, 19,032, 11,625, 12,196, 19,628, 16,882, 23,037, 21,556, 21,594, 26,943, 15,169, 14,548,* 10,214, 17,003, 15,181, 3,292, 16,396, 9,242,* 15,149, 15,476,* 13,974, 9,187, 7,525,* 9,417, 4,133, 7,019, 363,* 1914.*

	Starred Cases.	Non Starred Cases.
(2) Visual result with correction :—		
6/6, 6/9, 6/12	—	3
6/18, 6/24	—	2
6/36, 6/60	1	12
5/60, 4/60, 3/60	1	5
2/60, 1/60	3	14
P.L. and no P.L.	6	11
Vision not taken	—	1
TOTAL... ..	11	48

(3) Vitreous lost	8
(4) Suppuration resulting in excision	2
(5) Cases in which needling done... ..	16
(6) Capsule remained but not needled... ..	3
(7) Method of opening the capsule :—	
Knife... ..	2
Needle	3
Cystitome	1
Capsule forceps	3
Other methods... ..	1

(8) Cases in which fundus diseases other than cupping of the disc or glaucomatous atrophy found after operation :—

4,543, 2,931, 5,966, 14,548	4
------------------------------------	---

* Cases in which complications such as adherent loucoma, albuminuria, blepharitis, etc., were noted previous to operation.

† Vision not taken.

All cases in italic figures had had a trephine with iridectomy or an iridectomy operation done at a date anterior to the extraction. Those in ordinary figures either showed signs of glaucoma or had the fellow eye blind with glaucoma.

TABLE XXV.—RÉSUMÉ OF CATARACT OPERATIONS ON GLAUCOMATOUS EYES BY A.F.M.C.
FROM DECEMBER 1, 1909, UNTIL FEBRUARY 13, 1918.

(1) Ticket number: 22,114,* 5,586,* 5,671, 4,951, 4,885, 23,037, 15,169, 15,181, 16,396, 9,187.

	Starred Cases.	Non Starred Cases.
(2) Visual result with correction:—		
6/6, 6/9, 6/12... ..	—	1
6/18, 6/24	—	—
6/36, 6/60	1	3
5/60, 4/60, 3/60	—	1
2/60, 1/60	—	1
P.L. and no P.L.	1	2
TOTAL... ..	2	8

(3) Vitreous lost... ..	—
(4) Suppuration resulting in excision	1
(5) Cases needled	3
(6) Capsule remained but not needled... ..	1
(7) Method of opening the capsule:—	
Point of knife... ..	4
Cystitome	1
Capsule forceps	—
Needle	—
Delivery in capsule	—
(8) Cases in which fundus disease found after operation	—

* Cases in which complications were noted previous to operation.

All cases in italic figures had had a trephine with iridectomy or an iridectomy operation done at a date anterior to the extraction. Those in ordinary figures either showed signs of glaucoma or had the fellow eye blind with glaucoma.

TABLE XXVI.—PATHOLOGICAL REPORTS.

Specimens hardened and examined.													Number.
Affections of the lids	{	Cysts	...	...	...	...	...	...	...	...	...	...	3
		Inflammation...	...	...	...	...	...	...	...	...	...	...	1
		Tumours...	{	Benign with cysts	...	...	...	...	...	...	...	...	5
				Malignant	...	...	...	...	...	...	...	12	
Affections of the conjunctiva...	{	Inflammation...	...	...	...	...	...	...	...	...	...	...	19
		Trachoma	...	...	...	...	...	...	...	...	...	...	3
		Degeneration...	...	...	...	...	...	...	...	...	...	...	3
		Tumours...	{	Benign	...	...	...	...	...	...	...	...	8
				Malignant	{	Sarcoma	...	...	...	...	...	...	2
						Carcinoma	...	...	...	...	...	4	
Affections of the lacrimal organs	{	Tumours - Malignant	...	...	...	...	...	...	...	...	...	1	
Affections of the globe	{	Conjunctivitis with ulcers ending in	{	Adherent leucoma with Secondary glaucoma	...	...	...	...	...	...	...	6	
				Staphyloma,	...	...	...	...	...	...	94		
				Irido-cyclitis with atrophy of globe	...	...	...	...	...	34			
				Phthisis bulbi	...	...	...	...	...	2			
				Secondary glaucoma not due to above causes	...	...	...	...	...	2			
		Tumours of tunics	{	Cornea	...	...	...	...	...	...	0		
				Retina, Malignant	...	...	...	...	...	1			
					Choroidal, Malignant	...	...	...	...	...	1		
		Trauma	...	...	...	...	...	...	...	...	13		
		Infection after operation	...	...	...	...	...	...	...	...	2		
		Primary glaucoma	...	...	...	...	...	...	...	...	7		
		Irido-cyclitis	{	Sympathetic	...	...	...	...	...	...	1		
				Endogenous	...	...	...	...	...	...	2		
Operative failure	...	...	...	...	...	...	...	...	1				
Affections of the orbit	{	Tumours	{	Benign	...	...	...	...	...	...	...	2	
				Malignant	...	...	...	...	...	...	7		
		Inflammation	...	...	...	...	...	...	...	...	4		
		Sinuses	...	...	...	...	...	...	...	...	1		
Total													242

TABLE XXVII.—WASSERMANN TESTS.

Positive	21
Doubtful... ..	2
Negative... ..	23
Unfit	9
Total	55

TABLE XXVIII.—WORK DONE AT ALL OPHTHALMIC HOSPITALS DURING 1919.

I.—IN-PATIENTS :—													
Total number	...	...	...	...	...	...	...	...	...	...	...	...	3,613
Number of available beds	...	...	...	...	...	...	...	...	...	...	...	...	242
Number of diets issued	...	...	...	...	...	...	...	...	...	...	...	...	68,898
II.—OPERATIONS :—													
(1) Major :—													
(a) Senile cataract	...	...	...	...	...	...	...	...	...	...	...	...	364
(b) Soft cataract	...	...	...	...	...	...	...	...	...	...	...	...	141
(c) Trichiasis or entropion	...	...	...	...	...	...	...	...	...	...	...	...	24,611
(d) Other operations	...	...	...	...	...	...	...	...	...	...	...	...	5,510
Total												...	30,626
(2) Minor	...	...	...	...	...	...	...	...	...	...	...	...	19,348
GRAND TOTAL												...	49,974
III.—OUT-PATIENTS :—													
(1) Incurable *	...	...	...	...	...	...	...	...	...	...	...	...	2,441
(2) Postponed	...	...	...	...	...	...	...	...	...	...	...	...	4,611
(3) Tickets issued, i.e. new cases	...	...	...	...	...	...	...	...	...	...	...	...	76,525
(4) Old cases	...	...	...	...	...	...	...	...	...	...	...	...	906,961
(5) Total number of out-patient visits	...	...	...	...	...	...	...	...	...	...	...	...	990,538
(6) Average number of visits made to hospital by each patient under regular treatment	...	...	...	...	...	...	...	...	...	...	...	...	12·8
(7) Discharges :—													
(a) Cured	...	...	...	...	...	...	...	...	...	...	...	...	8,008
(b) Relieved	...	...	...	...	...	...	...	...	...	...	...	...	2,103
(c) Incurable †	...	...	...	...	...	...	...	...	...	...	...	...	2,026
(d) Spontaneously ceased to attend after having attended only once	...	...	...	...	...	...	...	...	...	...	...	...	15,533
(e) Spontaneously ceased to attend after having attended more than once	...	...	...	...	...	...	...	...	...	...	...	...	47,825
(8) Trichiasis cases seen among new patients :—													
(a) No previous operation having been performed...	...	...	...	...	...	...	...	...	...	...	...	...	15,732
(b) Previous operation performed :—													
(i) Successfully	...	...	...	...	...	...	...	...	...	...	...	...	2,311
(ii) Unsuccessfully (not at an ophthalmic hospital, but probably by some charlatan)	...	...	...	...	...	...	...	...	...	...	...	...	2,009
Total												...	20,052
(9) Ophthalmoscope and refraction cases	...	...	...	...	...	...	...	...	...	...	...	...	18,997
(10) General anæsthetics	...	...	...	...	...	...	...	...	...	...	...	...	3,933
(11) Constant wash cases (number of days treatment)	...	...	...	...	...	...	...	...	...	...	...	...	131,657
(12) Ages of patients examined :—													
(a) Under 1 year	...	...	...	...	...	...	...	...	...	...	...	Per Cent.	4,824
(b) From 1 to 5 years	...	...	...	...	...	...	...	...	...	...	...	11·18	8,562
(c) „ 6 „ 10 „	...	...	...	...	...	...	...	...	...	...	...	11·88	9,097
(d) „ 11 „ 15 „	...	...	...	...	...	...	...	...	...	...	...	9·77	7,479
(e) „ 16 „ 20 „	...	...	...	...	...	...	...	...	...	...	...	8·04	6,159
(f) „ 21 „ 40 „	...	...	...	...	...	...	...	...	...	...	...	33·54	25,671
(g) Over 40 years...	...	...	...	...	...	...	...	...	...	...	...	19·25	14,733
(13) Origin of patients :—													
Town in which hospital is situated	...	...	...	...	...	...	...	...	...	...	...	...	29,439
Markaz in which hospital is situated	...	...	...	...	...	...	...	...	...	...	...	...	27,583
Other Markazes	...	...	...	...	...	...	...	...	...	...	...	...	19,503

* Incurable cases do not receive tickets, but are recognized as soon as seen by the surgeon as both incurable and devoid of surgical interest.

† Incurable cases include those who are recognized as soon as seen by the surgeon as incurable but are given tickets for statistical or other purposes.

TABLE XXIX.—LIST OF DISEASES.

[illegible]

TABLE XXXI.—ACTUAL EXPENDITURE, CENTRAL ADMINISTRATION, 1918-1919.

CHAPTER.	Grant.	Expenditure.
	L.E.	L.E.
Pensionable staff	3,460	3,472
Hors cadre staff	169	168
Allowances :—		
Ophthalmic allowance	504	408
Compensation allowance	144	144
Transport, transfer, and travelling allowances :—		
Inspection allowance	288	288
Consolidated allowance	43	43
Transfer allowance	20	—
Travelling allowance	200	153
Transport	500	365
Books and periodicals	30	20
Telephone	7	7
Telegrams	30	19
Petty	15	1
TOTAL... ..	5,450	5,088

TABLE XXXII.—ACTUAL EXPENDITURE, GOVERNMENT OPHTHALMIC HOSPITALS, 1918-1919.

CHAPTER.	Grant.	Expenditure
	L.E.	L.E.
Pensionable staff	5,490 *	4,984
Hors cadre staff	4,420	4,157
Ophthalmic allowance	1,296	1,044
Transport and travelling allowances	1,031	1,401
Food	3,765	4,347
Forage	12	19
Water	183	186
Light	302	97
Sewage	54	95
Heating	520	437
Rent	45	78
General Furniture :—		
Equipment... ..	5,700 †	5,220
Surgical equipment		
Instrument... ..		
Drugs		
Dressings		
Books and periodicals	12	12
Telegrams and telephones	95	88
Petty	354	534
TOTAL... ..	23,279	22,699 ‡

* Excluding L.E. 372, being amount inserted for salary of M.O. 2nd class for Daqahliya Provincial Council Travelling Ophthalmic Hospital.

† This sum is obtained in accordance with Central Stores letter dated August 6, 1916, No. 1276/29/20/5/12, stating that maintenance of each permanent ophthalmic hospital is L.E. 450 per annum and L.E. 400 for each travelling ophthalmic hospital (L.E. $450 \times 10 + 400 \times 3 =$ L.E. 5,700).

‡ Excluding repairs being omitted as the credit is at the disposal of the Ministry of Public Works and no return is made

TABLE XXXIII.—ACTUAL EXPENDITURE, GOVERNMENT OPHTHALMIC HOSPITALS (PER UNIT), 1918-1919.

CHAPTER.	No. 1, T.O.H.		No. 2, S.O.H.		No. 3, T.O.H.		Tanta.		Asyût.		Mansûra.		Beni Suef.		Zagazig.		Dammanhâr.		Shibîn el Kôm.		Sohâg.		Minya.		Faiyûm.		
	L.E.		L.E.		L.E.		L.E.		L.E.		L.E.		L.E.		L.E.		L.E.		L.E.		L.E.		L.E.		L.E.		
Pensionable staff	369	451	310	544	382	400	325	359	374	384	350	380	356														
Hors cadre staff	282	351	177	402	357	349	332	320	302	329	317	328	311														
Ophthalmic allowance	148	144	107	128	66	63	39	66	39	73	51	54	66														
Transport and travelling allowance	257	204	145	120	72	64	145	66	61	56	86	69	56														
Food	269	295	111	431	569	444	341	349	280	337	307	302	312														
Forage	—	10	—	—	9	—	—	—	—	—	—	—	—														
Water	3	18	—	50	42	9	23	15	26	—	—	—	—														
Light	—	—	—	11	30	25	30	—	—	1	—	—	—														
Sewage	37	34	—	—	—	—	—	1	—	—	—	—	23														
Heating	48	14	7	10	22	12	29	30	33	24	54	143	11														
Rent	—	78	—	—	—	—	—	—	—	—	—	—	—														
General Furniture :—																											
Equipment	480	535	120	156	132	226	94	223	259	161	230	228	65														
Surgical equipment	12	26	26	31	19	3	46	5	17	—	—	9	5														
Instruments	5	26	—	9	12	5	36	26	9	29	26	5	26														
Drugs	55	208	204	166	110	158	57	168	105	137	142	77	55														
Dressings	—	10	60	36	26	24	14	24	—	22	7	14	19														
Books and periodicals	1	1	1	1	1	1	1	1	1	1	1	1	—														
Telegrams and telephones	9	3	1	9	9	9	8	8	8	10	1	6	7														
Petty	181	81	77	21	31	36	12	22	13	16	16	18	10														
TOTAL		2,156	2,489	2,125	1,889	1,828	1,532	1,683	1,527	1,580	1,588	1,634	1,322														

TABLE XXXIV.—ACTUAL EXPENDITURE, PROVINCIAL COUNCIL ORTHALMIC HOSPITALS, 1918-1919.

CHAPTER.	GHARBĪYA.					ASYŪT.		DAQAHLĪYA.	
	Grant.	Expenditure.	Expenditure Per Unit.			Grant.	Expenditure.	Grant.	Expenditure.
			Mahalla el Kūbra.	Kafr el Zaīyāt.	Santa.				
Employees	684	696	234	234	228	204	148	360	288
Servants	546	487	131	131	225	78	81	240	198
Transport :—									
Travelling allowance	—	17	1	1	15	—	—	—	—
Rail... ..	45	46	13	11	22	30	16	56	64
Sundry	—	18	4	6	8	—	39	—	28
Food	80	109	—	—	109	—	—	100	82
Water	18	—	—	—	—	—	4	—	—
Heating	40	41	10	13	18	—	11	—	14
Rent... ..	—	—	—	—	—	—	—	15	—
General furniture :—									
Equipment	200	216	55	55	106	80	37	50	168
Surgical instruments		71	20	15	36		11		25
Drugs	210	238	64	99	75	80	58	100	108
Dressings... ..		12	6	—	6		4		13
Stationery and printing	—	—	—	—	—	3	—	8	—
Post and telegrams	15	3	1	1	1	3	1	6	1
Petty	75	32	10	11	11	12	9	15	10
Total... ..	1,913	1,986	549	577	860	490	419	950	1,001

TABLE XXXV.—COMPARISON OF THE COST OF MAINTENANCE OF A PERMANENT
OPHTHALMIC HOSPITAL IN 1914 AND 1920.

	Number.	1914.	TOTAL.	Number.	1920.	TOTAL.
		L.E.	L.E.		L.E.	L.E. M.
ART. 1.—Salaries, Wages, and Allowances.						
A.—Pensionable Staff :—						
Medical Officers, 4th class	2	336		2	336	
Employee 4th class	1	60		1	72	
			396			408 000
C.—Hors Cadre Staff :—						
Moawin	1	48		1	48	
Chief attendant	1	36		2	72	
Attendants (male)	2	42		5	105	
Attendants (female)	2	36		2	36	
Murasla	1	18		1	21	
Cook	1	24		1	36	
Boab	1	18		—	—	
Sundry subordinate staff	3	54		—	—	
Gardener	—	—		1	21	
	12		276	13		339 000
20 per cent rise of pay to personnel		—	—		—	149 400
60 per cent war gratuity		—	—		—	537 840
E.—Allowances		—	72		—	72 000
ART. 2.—Transport, Transfer, and Travelling Allowances.						
Transport		50	50		5	105 000
Transfer					50	
Travelling allowance					50	
ART. 3.—Food		—	139		—	450 000
ART. 4.—Forage		—	—		—	—
ART. 5.—Rent, Water, Lighting, etc.:—						
Rent		—			—	
Water		30			40	
Lighting... ..		40			50	
Heating		20			30	
Sewage		12			—	
			102			120 000
ART. 6.—Books and Periodicals		—	1		—	1 000
ART. 7.—Telegrams and Telephones :—						
Telegrams		9	9		2	12 000
Telephones					10	
ART. 8.—Petty Expenses		—	12		—	30 000
Equipment		—	300		—	450 000
TOTAL... ..			1,357			2,674 240

TABLE XXXVI.—COST OF UNIFORM DIETS FOR ALL PATIENTS AT OPHTHALMIC HOSPITALS DURING 1911, EXCLUDING COST OF RATIONS OF EMPLOYEES.

HOSPITALS.	Number of Diets issued.	Total Cost. *	Cost per Day per Head.
		L.E.	Mills.
No. 1 Travelling, Aswân and Idfu	2,992	180	60·2
Daqahliya Travelling ‡	1,456	82	56·2
Asyût	8,053	435	54·1
Tanta	5,970	315	53·0
Sohâg	4,166	213	51·1
Shibîn el Kôm	4,543	231	51·0
Faiyûm	3,895	195	50·2
Mansûra... ..	6,835	334	49·0
Damanhûr	4,213	194	46·0
Zagazig	5,613	256	46·0
Santa Gharbiya P.C. ‡	2,440	109	45·0
Minya	5,207	221	42·3
No. 2 Stationary, Gîza ‡	4,440	182	41·0
Beni Suef	5,360	219	40·8
No. 3 Travelling, Barrage	1,205	46 †	38·2
TOTAL... ..	66,388	3,212	48·4

* Fuel excluded.

† This calculation is for five months only from November 4, 1918 (date of opening hospital), until March 31, 1919 (date on which the financial year terminates).

‡ Rations of these hospitals are not supplied by contractors but bought locally.
Santa :—Not regulation Diet.

SCALE OF FULL DIET AS GIVEN TO ALL PATIENTS AT ALL OPHTHALMIC HOSPITALS EXCEPT SANTA.

	Grammes.
Bread	600
Beef	150
Vegetables	150
Lentils... ..	75
Rice	75
Milk	200
Artificial butter	25
Sugar	30
Salt	15

TABLE XXXVII.—NUMBER OF BEDS AT THE OPHTHALMIC HOSPITALS.

	1st.	3rd.
No. 1 Travelling	—	10
No. 2 Stationary	—	20
No. 3 Travelling	—	10
Tanta	—	20
Asyût	1	27
Mansûra... ..	—	20
Beni Suef	—	16
Zagazig	—	16
Damanhûr	—	16
Shebîn el Kôm	—	16
Sohâg	—	16
Minya	—	16
Faiyûm	—	12
Benha	—	16
Qena	—	20
Daqahliya	—	8
Santa	—	10

VI.—STATISTICS OF OPHTHALMIC TREATMENT IN SCHOOLS.

Ophthalmic treatment at the Government Primary Schools of Tanta, Asyût, Mansûra, Beni Suef, Zagazig, Damanhûr, Shîbîn el Kôm, Sohâg, Minya, Faiyûm, and Gîza, during 1919-1920.

TABLE I.—PUPILS INSPECTED.

SCHOOL.	BEGINNING OF THE YEAR.			END OF THE YEAR.		
	Pupils inspected.	Pupils with Trachoma.	Per Cent.	Pupils inspected.	Pupils with Trachoma.	Per Cent.
Tanta	465	388	83·4	456	413	90·5
Asyût	305	261	85·5	312	266	85·2
Mansûra	439	399	90·8	383	344	89·8
Beni Suef	298	275	92·3	306	283	92·4
Zagazig	368	321	87·2	358	314	87·4
Damanhûr	129	115	89·1	114	103	90·3
Shibîn el Kôm	141	138	97·8	124	123	99·1
Sohâg	173	167	96·5	158	151	95·5
Minya	226	218	96·4	133	222	95·2
Faiyûm	178	168	94·3	170	158	92·9
Gîza	188	172	91·4	169	152	89·9
TOTAL... ..	2,910	2,622	90·1	2,783	2,529	90·8

TABLE II (a).—CONDITION OF CONJUNCTIVITIS.

SCHOOLS.	BEGINNING OF THE YEAR.				END OF THE YEAR.			
	Healthy.	Conjunctivitis.	Trachoma.				Conjunctivitis.	Total.
			I.	II.	III.	IV.		
Tanta ... Per cent ...	77 16.5	—	19 4.08	36 7.7	197 42.3	136 29.2	—	465
Asyût ... Per cent ...	41 13.4	3 0.9	47 15.4	29 9.5	121 39.6	64 20.9	5 1.6	305
Mansûra ... Per cent ...	40 9.1	—	41 9.3	19 4.3	182 41.4	157 35.7	—	439
Beni Suef ... Per cent ...	23 7.7	—	23 7.7	23 7.7	105 35.2	124 41.6	—	298
Zagazig ... Per cent ...	47 12.7	—	21 5.7	21 5.7	195 52.9	84 22.8	—	368
Damanhûr ... Per cent ...	14 10.8	—	6 4.6	1 0.7	69 53.4	39 30.2	—	129
Shibîn el Kôm ... Per cent ...	3 2.1	—	4 2.8	24 17.0	82 58.1	28 19.8	—	141
Sohâg ... Per cent ...	6 3.4	—	11 6.3	9 5.2	111 64.1	36 20.8	—	173
Minya ... Per cent ...	8 3.5	—	24 10.5	9 3.9	90 39.8	95 42.03	—	226
Gîza ... Per cent ...	16 8.5	—	15 7.9	28 14.8	92 48.9	37 19.6	—	188
TOTAL ... Per cent ...	275 10.0	3 0.1	211 7.7	199 7.2	1,244 45.5	800 29.2	5 0.19	2,732
			141 5.3	60 2.2	1,155 44.2	1,015 38.8		2,613

TABLE II (b).—EFFECT OF TREATMENT ON SERIOUS STAGES OF TRACHOMA.

YEAR.	Pupils with any Stage of Trachoma. Beginning of the Year.	Pupils with Serious Stage of Trachoma I and II. Beginning of the Year.		Pupils with Serious Stage of Trachoma I and II. End of the Year.	
	Number.	Number.	Per Cent.	Number.	Per Cent.
1907-1908	464	289	62·3	—	—
1914-1915	1,553	342	22·0	61	4·0
1916-1917	1,528	327	21·4	48	3·0
1917-1918	1,699	282	16·6	71	4·2
1919-1920	2,454	410	16·7	201	8·2

TABLE II (c).—STAGES OF TRACHOMA AT BEGINNING AND END OF SCHOOL YEAR.

STAGES OF TRACHOMA.	Beginning of the Year.		End of the Year.	
	Number.	Per Cent.	Number.	Per Cent.
Trachoma . I ...	211	8·6	141	5·9
„ II ...	199	8·1	60	2·5
„ III ...	1,244	50·6	1,155	48·7
„ IV ...	800	32·6	1,015	42·8

TABLE III (a).—TRACHOMA AND ITS RELATION TO SCHOOL YEARS (BEGINNING OF THE YEAR).

	FIRST YEAR.				SECOND YEAR.				THIRD YEAR.				FOURTH YEAR.			
	Trachoma.				Healthy.	Conjunctivitis.	Trachoma.				Healthy.	Conjunctivitis.	Trachoma.			
	I.	II.	III.	IV.			I.	II.	III.	IV.			I.	II.	III.	IV.
Tanta	16	17	71	14	24	—	1	12	63	29	19	—	1	3	33	51
Asyût	27	15	27	17	9	1	10	7	34	17	17	—	2	2	29	12
Mansûra	28	11	35	36	18	—	8	4	57	37	8	—	4	3	26	48
Beni Suef	10	13	39	25	8	—	10	7	33	42	1	—	1	1	11	30
Zagazig... ..	13	6	43	8	13	—	6	2	65	24	9	—	—	8	34	26
Damanhûr	4	1	24	7	2	—	—	—	19	13	2	—	—	—	10	
Shibîn el Kôm	3	12	9	2	2	—	1	9	20	7	—	—	—	—	32	13
Sohâg	4	4	32	6	1	—	2	1	28	7	1	—	2	2	29	7
Minya	10	6	28	22	2	—	9	2	28	20	2	—	—	1	14	20
Giza	13	9	17	6	6	—	2	9	30	13	2	—	—	5	19	8
Total	128	94	345	143	85	1	49	53	377	209	61	—	13	25	237	221

TABLE III (b).—COMPARISON OF SERIOUS STAGES OF TRACHOMA (Beginning of the Year).

CLASS.	Total Cases of Trachoma.		Serious Stages of Trachoma I and II.		Per Cent.	
	1917-1918.	1919-1920.	1917-1918.	1919-1920.	1917-1918.	1919-1920.
First Year... ..	393	710	164	222	41·7	31·2
Second „	424	688	65	102	15·3	14·8
Third „	440	560	43	48	9·8	8·5
Fourth „	442	496	10	38	2·3	7·6

TABLE IV.—VISION OF ALL PUPILS WITHOUT SPECTACLES.

	Tanta.	Asyút.	Mansûra.	Beni Suef.	Zagazig.	Damanhûr.	Shibîn el Kôm.	Sohâg.	Minya.	Faiyûm.	Giza.	Total.	Grand Total.	Per Cent.
1. Good Vision :—														
(a) Normal vision in each eye 6/6 and 6/6 ...	51	57	31	21	57	28	10	16	38	11	27	347	—	—
(b) Vision 6/6 and 6/9, or 6/9 and 6/9	81	72	89	57	45	16	33	27	34	29	30	513	860	29·5
2. Fair Vision :—														
(a) Vision 6/6 and 6/12, or 6/9 and 6/12, or 6/12 and 6/12	100	58	95	55	77	21	38	30	51	38	15	578	—	—
(b) Vision 6/6 and 6/18...	57	40	39	56	49	18	14	30	35	29	26	393	971	33·4
3. Bad Vision :—														
Fails to attain any of the above standards ...	176	78	185	109	140	46	46	70	68	71	90	1,079	1,079	37·1
TOTAL	465	305	439	298	368	129	141	173	226	178	188	2,910	2,910	—

TABLE V.—SPECTACLES ORDERED.

	Tanta.	Asyút.	Mansûra.	Beni Suef.	Zagazig.	Damanhûr.	Shibîn el Kôm.	Sohâg.	Minya.	Faiyûm.	Giza.	Total.
Number of pupils now attending obtained spectacles in previous year	15	19	23	11	10	3	7	12	9	4	6	119
Number of pupils now attending obtained spectacles in this year ...	10	14	14	7	13	7	6	15	4	11	22	123
Total... ..	25	33	37	18	23	10	13	27	13	15	28	242
Spectacles on order or under repair...	8	10	6	—	13	7	5	6	—	—	11	66
Number of pupils wearing spectacles on date of general inspection... ..	14	23	25	18	10	3	8	20	11	13	10	155
Net number not wearing spectacles ...	3	—	6	—	—	—	—	1	2	2	7	21

TABLE VI.—VISION OF PUPILS ORDERED SPECTACLES.

	Total.	Grand Total.	Per Cent.
(a) BEFORE ORDERING.			
Good Vision :—			
(a) Normal vision in each eye 6/6 and 6/6... ..	1		
(b) Vision 6/6 and 6/9, or 6/9 and 6/9... ..	7	8	3·3
Fair Vision :—			
(a) Vision 6/6 and 6/12, or 6/9 and 6/12, or 6/12 and 6/12	8		
(b) Vision 6/6 and 6/18... ..	5	13	5·3
Bad Vision :—			
Fails to attain any of the above standards... ..	221	221	91·3
Total... ..		242	
(b) AFTER ORDERING.			
Good Vision :—			
(a) Attains 6/6 and 6/6 with aid of spectacles not greater in strength than + or — 6 D.	11		
(b) Attains 6/6 and 6/9 or 6/9 and 6/9 with aid of spectacles not greater in strength than + or — 6 D.	33	44	18·2
Fair Vision :—			
(a) Attains 6/6 and 6/12 or 6/9 and 6/12 or 6/12 and 6/12 with aid of spectacles not greater in strength than + or — 6 D.	53		
(b) Attains 6/6 and 6/18 with aid of spectacles not greater in strength than + or — 6 D.	16	69	28·5
Bad Vision :—			
(a) Fails to attain any of the above standards with aid of spectacles not greater in strength than + or — 6 D.	102		
(b) Attains any of the above standards with aid of spectacles greater in strength than + or — 6 D.	22		
(c) Fails to attain any of the above standards with more than + or — 6 D.	5	129	53·3
Total... ..		242	

TABLE VII.—CONDITION OF CORNEA BEFORE TREATMENT.

SCHOOLS.	Both Corneae Clear.	One Cornea Clear the other showing Opacity.	Opacity of both Corneae.
Tanta	405	48	12
Asyût	295	9	1
Mansûra	347	35	57
Beni Suef	245	40	13
Zagazig	315	37	16
Damanhûr	105	17	7
Shibîn el Kôm	112	13	16
Sohâg	127	35	11
Minya	208	13	5
Faiyûm	147	21	10
Giza	145	24	19
Total... ..	2,451	292	167
Per cent... ..	84·2	10·0	5·7

VII.—FAIYUM TREATMENT BY ANTISEPTIC DROPS ONLY.

TABLE I (a).—CONDITION OF CONJUNCTIVITIS.

	Beginning of the Year.		End of the Year.	
	Number.	Per Cent.	Number.	Per Cent.
Healthy	10	5·6	12	7·06
Conjunctivitis	—	—	—	—
Trachoma I	7	3·9	5	2·9
„ II	17	9·5	8	4·7
„ III	117	65·7	114	67·06
„ IV	27	15·2	31	18·2
TOTAL	178	99·9	170	99·92

TABLE I (b).—EFFECT OF TREATMENT ON SERIOUS STAGES OF TRACHOMA.

PUPILS WITH ANY STAGE OF TRACHOMA.	STAGES I AND II.			
	Beginning of the Year.		End of the Year.	
	Number.	Per Cent.	Number.	Per Cent.
168	24	14·2	13	7·7

TABLE II (a).—TRACHOMA AND ITS RELATION TO SCHOOL YEARS (Beginning of the Year).

YEAR.	Healthy.	TRACHOMA.			
		I.	II.	III.	IV.
First year	3	5	14	21	5
Second year	2	1	1	48	6
Third year	2	1	2	33	7
Fourth year	3	—	—	15	9
Total... ..	10	7	17	117	27

TABLE II (b).—COMPARISON OF SERIOUS STAGES OF TRACHOMA (Beginning of the Year).

YEAR.	Total Number of Cases of Trachoma.	Stage I and II.	Per Cent.
First year	45	19	42·2
Second year	56	2	3·5
Third year	43	3	7
Fourth year	24	—	—
Total... ..	168	24	14·2

VIII.—PUBLICATIONS.

(A) Annual.

- (1) Annual Report on Ophthalmic Hospitals : 1912, 1913, 1914, 1915 with 1916, 1917, 1918, 1919.
- (2) Bulletin of the Ophthalmological Society of Egypt : 1904 with 1905, 1906 * with 1907, 1908 * with 1909, * 1910, * 1911, * 1912, 1913, 1914, 1915, 1917, 1918, 1919, and 1920.

(B) Occasional.

- (1) "Four Years' Work with the Ophthalmic Hospitals of Egypt." Annual Meeting, British Medical Association, 1907.
- (2) "The Relief of Eye Disease in Egypt with some Consideration of the Incidence of Blindness and Trachoma." Sixteenth International Medical Congress, Budapest, 1909.
- (3) "The Egyptian Ophthalmic Hospitals." Annual Meeting, British Medical Association, 1910.
- (4) "Ophthalmic Hospitals in Egypt." "Ophthalmic Record." U.S.A., 1910.
- (5) Communication read at the Fourth International Blind Congress in Cairo, February 1911. Published in "Ophthalmoscope," 1911.*
- (6) *Les Divisions du Trachome, le Traitement de cette Affection et de ses Complications.* By the Director, *Archives d'Ophthalmologie*, September 1911.
- (7) "Trachoma and its Complications in Egypt." By the Director, Cambridge University Press, London, 1913.

* These volumes are now exhausted.

The available copies of the Bulletin of the Ophthalmological Society of Egypt may be obtained from the Honorary Secretary, c/o Department of Public Health, Cairo. Price P.T. 20 or 4s. 6d. post free.

Govt. Press 4979-1920-350 ex.
